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SCIENCE AND THE PUBLIC HEALTH.

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HAD I been at liberty to choose the subject on which I am to address you today, I should have somewhat modified its title. The subject, "Science and the Public Health," is cold and uninteresting. It calls to mind unlimited statistics and figures. There is little in the subject that appeals to the imagination. And yet viewed historically there is probably no more romantic page in history than the emergence of the world from the ignorance, bigotry and superstition of the earlier centuries to the modern conception of public health. It will be my attempt in the time that has been allotted to me to try and picture to you the influences that have been at work during this long period of time to change our attitude towards the value of human life. I hope it will be evident, from the data which I will present to you, that the remarkable change which has been noted is due primarily to the influence which science has exerted in studying the causes which underlie disease; in determining the effects of these causes and in inventing and creating the mechanism for their removal.

I have said that earlier centuries, with respect to the problem of public health, were times of ignorance, of superstition and even of violent bigotry and hatred. Let me cite you an example of what I mean. The fourteenth century will ever be memorable in the annals of public health. It was in this century, from the period of 1348 to 1351, that the so-called "Black Death," or as we know it, the bubonic plague, ravaged nearly all sections of the then civilized world. Transplanted from China it spread to Europe. The story has it that this event was heralded by earthquakes and other natural phenomena. Before its fatal work finally ceased it had killed nearly twenty-five millions of human beings, approximately one fourth of the world's population.

It was but natural that those who were afflicted should have endeavored to ascertain the cause of their suffering. It is interesting, one might al-

most say astonishing in these days, to know that with all the other possible reasons that might have been ascribed to explain the origin of this dread calamity, rumor spread from city to city, and eventually from country to country, that the disease was caused by the poisoning of wells and rivers by Jews. Nor did the tale end here. Gossip carried from mouth to mouth and from town to town soon elaborated the story. Not only were rivers and wells poisoned, but even the air was included. It was definitely stated as a known fact that individuals in Spain were engaged in manufacturing the poison which was used and that messengers had been dispatched far and wide with boxes containing the poison. Even the ingredients were stated. In this concoction there were employed the flesh of basilisks, spiders, frogs and lizards, mixed with the hearts of Christians and the dough of consecrated wafers. The results were obvious and certain. In 1348, in a certain town of Southern France where the false report seems to have emanated, twelve Jews were cast into the flames. From France the rumor spread to Catalonia and Aragon. One country followed the example of another. On Lake Geneva, throughout Switzerland, in the cities of Cologne and Strasburg, congregations were burned at the stake and tortured. Even though Pope Clement VII took up the cause of these unfortunate people and showed that the plague occurred even in sections and cities where no Jews resided, his efforts were without avail. It is estimated that ten thousand Jews were killed in Poland alone. It is more than probable that in all, over twenty-five thousand people gave up their lives as a result of this ignorance and superstition.

Possibly no greater contrast can be shown to this state of affairs than the year 1914 in the United States of America. To one and all of you conversant with the current news there must be known the recent outbreak of an epidemic of bubonic plague in the city of New Orleans. Immediately the public health authorities of the United States, with the full knowledge of its origin, took steps to hold it in check. Since the Government took hold of the situation in New Orleans, there has been practically no spread of the epidemic. Instead of butchering human beings by the thousands, the officials have exterminated thousands of rats known to them as the carriers of the infection. It is a far cry from the fourteenth to the twentieth centuries. It is a far cry from the methods of the benighted past to the application of scientific knowledge, as evidenced in our modern methods of dealing with epidemics of the kind described.

I hoped, in presenting this subject to you, to be able to do so without calling on statistics to aid me. If, however, we are to appreciate what has been accomplished through scientific knowledge and to obtain an accurate picture of the marvelous changes that have taken place in five hundred years, we cannot do so without having before us the mental picture which is given by mortality figures.

The following will illustrate what I mean: Roscher has pointed out that, even as late as 1761, 50 per cent. of the English population died before reaching the age of twenty. The enormous gain of today is not appreciated until one realizes that at present one half of the people of England live until the fifty-fourth year has been reached. It will occasion no surprise to learn that in Prussia, during the decade 1751–60, only 312 out of every 1,000 children survived to the age of ten. In other words, two thirds of the entire population failed to reach an age of social usefulness, and perished while still a burden to parents and a cost to society. In the admirable studies which Westergaarde has made, he has shown that in Sweden, during the decade 1751–60, 13 per cent. of all deaths were due to smallpox—a proportion far in excess of that caused by the "white plague" of today. England, France, Germany and the minor European countries all testify to the gradually increasing expectation of life of their inhabitants. The tables computed for Netherlands show a most remarkable degree of progress. In the period 1811–25, one half of the males died before reaching the age of twenty-five. During the decade 1860–69, forty years represented a probable life-time. The table by Van Pesch for 1890–99 shows that the fifty-sixth year is now passed before one half of the males perish, although one-fourth only were left at that age in the period 1816–27.

In addition to the facts brought out by the figures given above, you will be interested to know that in England and Wales, in the years 1841–50, out of 1,000 infants less than one year of age, 153 died. In the year 1906, the mortality was still 132 per thousand. Since the year 1910 in New York City and in other cities in the United States, the death-rate for infants has fallen below 100 per thousand. It remained for the scientific research of the last decade of the nineteenth century to show that, if infants are given pure milk and fresh air, infant mortality can be materially reduced.

A similar lowering of mortality rates are observable at other age groups, from all of which we may draw the general conclusion that, in the last hundred years, there has been a marked improvement in population mortality and that, as a result, human beings are living longer today than they did one hundred years ago.

Certain interesting facts, however, are brought out, when these mortality figures are studied not merely according to age groups, but according to the causes. It has been found, for example, that the reduction of mortality has been most pronounced in the diseases which are distinctly infectious in nature. By these I refer to diseases such as smallpox, the plague, typhus fever, scarlet fever, typhoid fever, etc. In fact, one or two of these diseases such as typhus fever and smallpox, are gradually becoming extinct in the United States. On the other hand, it appears that deaths from diseases such as cancer, diabetes, cerebral hemorrhage and apoplexy,

organic diseases of the heart, diseases of the arteries, cirrhosis of the liver and Bright's disease have not decreased proportionately to deaths from so-called infectious diseases, and in a few instances have actually increased. The vital statistics for the so-called registration states of the Census Bureau show an increase of deaths from cancer in the year 1910, as against the year 1900, of 30 $^{6}/_{10}$ per cent. Similarly there has been an increase in deaths from diabetes of 60 per cent. and of diseases of the arteries of 396 $^{3}/_{10}$ per cent. Cirrhosis of the liver and Bright's disease should be added to this category with increases of 14 $^{3}/_{10}$ per cent. and 18 $^{1}/_{10}$ per cent., respectively. The rate for the seven diseases combined, mentioned above, is 33 $^{4}/_{5}$ per cent. higher for 1910 than for 1900.

Let us see whether we can explain the true reasons for these important and interesting changes in mortality. Studying the infectious diseases by themselves we find a most amazing picture of the application of pure science in combating these particular evils. It sounds crass and sordid to say that the reduction in the number of deaths from contagious diseases and the prevention of these diseases is due to the discovery of a small and insignificant germ. What a vista this discovery opens to the scientific student! What hours of research, what days of investigation, what fruitless and useless tests and attempts were made before the final clue was found. The tribute due to medical science is one that must be unhesitatingly and ungrudgingly given. Without the unselfish labors of the medical fraternity, without their brilliant and keen analysis, without their willingness to labor unceasingly in the pursuit of a theory, it is likely that we should still be, so far as public health is concerned, in the dark ages.

It would seem to me that the appeal which can be made through the imagination of students in an institution such as this, by work of the character described, must be exceedingly great. The education which is being given to you here is to ground you in the fundamentals of the various sciences which you are studying, so that eventually you may be competent to inaugurate research and investigation on your own responsibility. The example which has been set to you by men such as Metchnikoff, Koch, Virchow, Klebs-Loeffler, Ehrlich, Pasteur and Wassermann should act as an incentive to follow in the footsteps of these giants in the field of medical discovery, particularly if it be remembered that in a number of classic instances theory preceded results. I need not tell to students of the sciences such as you are, the fascinating story of Mendeleéff and the atomic theory and how subsequent discovery of new elements proved the correctness of his theory. Similarly, some of the most brilliant discoveries in the field of bacteriology have been the result of preconceived theories.

And yet, great as has been the contribution of medicine to the improvement of the health of the people, other sciences have played their important and valuable part. I have referred above to the science of statistics.

And yet this science would have been of little value had not the Greek perfected his geometry; had not the Arab invented algebra; had not Napier constructed his logarithms.

After medicine the one science which probably has played the greatest part in improving health conditions is the science of chemistry. Much as praise is to be given to medicine for its results, it is questionable whether any of these results would have been brought about without the coöperation of her two handmaidens, chemistry and physics. Had not Priestley discovered oxygen in the year 1774 and had not these discoveries been followed up by the brilliant experiment of Lavosier on air, it is doubtful whether medical research would have reached the high point of development which it occupies today. Without the microscope we would not have discovered the bacillus. The discovery of ether and chloroform were in the domain of chemical science. Can you conceive of a more beautiful, one might say poetic, thought than that of Kekule's conception of the benzene ring, which revolutionized the field of organic chemistry. One need but recall the many derivatives of the coal-tar group of which a number have valuable medicinal properties as narcotics and febrifuges.

Physiological chemistry also has added its quota to the fund of information which has been of benefit to medicine. The studies which have been made regarding the nature of secretions, the chemical changes which take place in the human body, the effect of drugs on the human organism and in particular the comparative studies which have been made on the lower animals have all had their valuable influence in bringing medical knowledge to the point where the subsequent discovery of the nature and action of bacteria has become possible. Without these preliminary chemical studies, as I have said above, it is doubtful whether the bacteriological researches which have culminated so successfully would have borne fruit.

In other fields of public health work the science of chemistry has been equally valuable. Generally speaking, one may include under public health work of the municipality, state or federal government the following subdivisions: The care of the water supply, the care of the food supply, the care of the milk supply; the removal of dirt, ashes and garbage and the cleaning of streets; the disposal of sewage; proper housing, and the control of contagious diseases. The science of chemistry has been availed of in all of these subdivisions. The production of an adequate and a potable water supply is not only a question of the removal of pathogenic bacteria, it involves a study of the general composition of water itself, which can be accomplished only by a careful chemical examination of this important element. The recent agitation for pure food has largely been due to investigation and researches which have been made primarily by the Department of Agriculture, Division of Chemistry, in the composition of food stuffs and the detection of impurities been introduced into them. It

is only through a thorough knowledge of the constituency of food stuffs that we are able to determine their value from the standpoint of nutrition. Here the science of chemistry in the past few decades has been of inestimable value.

Nor has engineering science been found wanting in this great campaign for the improvement of health. Without its help we might still be groping for the solution of the problem how to reduce illness. It is not possible to conceive of a proper water supply today without utilizing the services of the sanitary engineer. The problems of filtration, purification and transportation of water over long distances has necessitated the use of engineering knowledge of the highest degree. Our food supply would still be limited in quantity and frequently decayed were it not for the accomplishments of engineers in building refrigerators and cold-storage cars. The architect as well as the engineer has designed sanitary barns and dairies for the proper housing of cows. Today we have sanitary milk bottles and bottle-washing machines. The removal of dirt from our streets today is no longer the problem of the individual. The old adage that the streets of Jerusalem were kept clean by reason of the fact that each individual swept the section of the street in front of his own door no longer applies. Street cleaning today is a community problem. As such, it can be done more effectively. Such a development would not have been possible had not the engineer given the means for adequate water supply and had he not devised properly paved streets which permit the highest efficiency in cleaning with a maximum expenditure of labor and time. One cannot conceive a comprehensive system for removal of sewage that does not involve the brains of the mechanic and of the engineer. Our problem of efficient housing for workingmen, the construction of sanitary and well-lighted tenements in big cities, has required the joint efforts of the architect and the engineer. To the extent to which all of these agencies coöperate in the improvement of health conditions, the sciences referred to have contributed their measure of assistance.

Until now we have given consideration primarily to the subject of public health as a phase of public work. The lowering of the death-rate from contagious diseases has largely been the result of municipal, state or federal activity. As stated above, statistics show a material lowering in the mortality from contagious diseases. This reduction in the death-rate can in a large part be attributed to the active steps which have been taken by health officers and health departments everywhere in enforcing laws and ordinances.

On the other hand there are certain diseases in which the death-rate apparently had not been reduced. Such a condition seems extraordinary in view of the marked changes that have taken place in social, economic and industrial conditions in the last hundred years. It might have anticipated

that in these diseases, such as arterio-sclerosis, heart disease, etc., a reduction in mortality would have taken place correspondingly to the reduction in the so-called infectious diseases.

If the statistics are correct, it leads up to the other important consideration in connection with the general subject of human life, namely, the question of individual health as contrasted with public health. In the domain of the latter much has been accomplished. In the domain of individual or personal health there is yet much to be done. We are on the edge of a novel and interesting development along lines of personal health. Human beings are beginning to appreciate and to realize that they have responsibilities to themselves and to the community to maintain physical efficiency at the highest. The state and the community may do much to guard the individual from extraneous dangers to his life. The individual himself must look after and be on guard against the dangers that come from within.

It is conceded by many authorities that the illnesses of later life are to some extent the results of illnesses contracted in childhood. For these the individual is only in part responsible, since under efficient government his exposure to such diseases would be slight. To a large part, however, the degenerative diseases of later life, as they are known, are the result of the individual's carelessness and negligence, and in too many instances they are due to his indifference and fault. We are just beginning to appreciate the results of over-indulgence. Year by year we are learning more of the value of foods and are realizing that in too many instances we are catering to and pampering our physical appetites. It does not seem unsafe to say that many of us eat too much, that we are overloading our digestive organs and are paying the penalty in later life. Over-indulgence in alcohol and tobacco is common. Mental inertia and physical laziness tempt us to the comforts of the cozy chair rather than to the brisk walk and other much needed exercise. It is within the memory of many of us older ones when daily bathing was considered a luxury and not a necessity. Edison has claimed that the normal individual needs from two to four hours of sleep. If this be the case the larger part of our population is obtaining a surfeit of this commodity. Work, which was decreed for all of us, is frequently done under strain and stress. Studies which have been made confirm the belief that physical and mental fatigue have a decided influence on physiological processes.

To sum up, it appears that if we are to develop a nation of physically sound men and women, more is necessary then action on the part of the public authorities. It is evident that if health campaigns are to be effective, each individual must do his personal share towards keeping himself in the acme of physical condition. We must learn that we as individuals are responsible to our fellowmen and to our progeny. There is a moral obligation as well as a physical one not too succumb to the temptation of

over-eating, over-drinking, absence of exercise, and overwork. The next decade will be one in which the campaign of personal hygiene, as distinguished from public hygiene, will be fought. It will be asked of men and women that they assume the responsibility of keeping themselves in the best possible physical condition, so that the wasting diseases of middle and later life be minimized and so that we may build up a race in which our descendants shall be known as those who survive because they are physically fit to survive.

Nor is there any reason why this should not be possible. In the domain of personal hygiene, science has been equally as lavish as in the field of public hygiene. Men are able to live better than was possible in the days of our fathers. This is true not only for the man of means but for the worker whose entire asset is the labor of his hands. The statutes of many states protect and safeguard workmen against industrial accidents. The wise and conscientious employer today realizes that the welfare of his employees means better protection and greater efficiency. To bring about ideal conditions, this wise and humane employer has called on the scientist so that his employees may work under ideal conditions. He has used the sanatarian to improve the ventilation and the lighting of his plant. He has called on the architect to draft plans, so that work shops may give the maximum of light and air. He has summoned the engineer and the inventor to construct machinery so that toil and strain shall be reduced; labor-saving machinery has taken the place of the human being for tasks that were back-breaking and nerve-racking. Hours of labor have been reduced so that men and women may enjoy a maximum of leisure and rest and recreation.

The list of inventions, discoveries and improvements which science has brought about in the last few decades for the conservation of human life is limitless. Think of the changes that have taken place since your forefathers lived in this city of brotherly love; think of the changes in transportation. How different from the old drafty stove-heated coaches are the Pullman trains of today. Think of the difference in our homes from the early days when they were lighted with tallow candles, and today when electricity has been utilized to devise a lighting system which shall place the least strain upon the eyes. Even the deaf are beginning to hear with special electrical appliances invented for this purpose. Through the aid of science, dental surgery today enables every individual at a minimum of pain and discomfort to keep his teeth in the best possible condition. Recent research has shown the vital part good teeth play in the problem of good health. The telephone, telegraph and wireless message have enabled us to transact business at a modicum of expenditure of time and energy. Nor do these benefits accrue to the resident of the city only. The farmer as well has profited. Labor-saving devices and improved

machinery are removing from him the toil and the strain which heretofore have been a part of the tilling of the soil. For those who become ill, modern surgery and modern hospital treatment are hailed as the possible deliverers from death. We are gradually learning through introductions of proper safeguards to avoid diseases that are due to dust in our streets or in our factories. The vacuum cleaner is becoming an essential part of the family outfit. Elevators take us to our apartments in our homes where we find fireless cookers, gas stoves, washing machines and even electric irons and electric toasters. Artificial ice has taken the place of possibly contaminated ice from our rivers and streams. Bi-focal glasses enable us to correct impaired vision and obviate the necessity of the old-fashioned horn spectacles. Who today wears the old red flannels or the hobnailed shoes of a few decades ago? Our homes, our clothing, our food, in fact everything that affects our happiness and well being have been improved through the instrumentality of science, to keep us in the best possible physical condition.

The motto of the New York Department of Public Health reads as follows: "Public health is purchasable. Within natural limitations a community can determine its own death-rate." The lesson which this adage teaches is obvious. It recognizes the fact that human beings differ from the lower animals in the ability to reason. It postulates the optimistic conception that reason, which is simply a synonym for science, may be applied to the betterment of human health conditions. In due course we may be able to live out our allotted span of life. Whether this shall be threescore years and ten, or even longer, as some contend, is a problem for the future. As reasoning beings, gifted with the ability to control our own actions and appetites, there is open for us the opportunity through sane methods of living, through the careful regulations of our daily habits and through the opportunities which are given us on all sides to live wholesomely, the opportunity is given to us, I repeat, to live to a ripe, happy and contented old age.

THE CONTROL OF VENEREAL DISEASES BY HEALTH DEPARTMENTS.

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Read before the meeting of the Massachusetts Association of Boards of Health, Boston, January 28, 1915.

HEALTH departments are created and financed to safeguard the public health. Each state and municipal health department has its own peculiar problem in deciding how it can most efficiently spend its appropriation.

The character of the work of health departments has entirely changed in the past twenty-five years by reason of laboratory discoveries, and their application to public health measures. Probably the next generation will see even more striking changes.

Notable achievements have been accomplished in health measures directed against diphtheria, tuberculosis, typhoid, yellow fever, malaria, hookworm, and other serious diseases.

But two of the most common and dangerous of communicable diseases —syphilis and gonorrhœa—have been practically left untouched by health departments. There is, however, one striking exception, namely, the Health Department of the City of New York. Its sane and scientific work in venereal diseases merits the commendation of all medical men. This department was the pioneer in establishing free complement fixation tests for syphilis and gonorrhœa. The results of their laboratory work, and their methods of reporting cases, have demonstrated that there is a practical method which any state or city can apply to the control of venereal diseases.

Personally, after many years' experience in laboratories, in hospitals, in the autopsy room, and in private practice, I have no hesitation in stating that the ravages of syphilis and gonorrhœa are far greater than those caused by diphtheria, scarlet fever and typhoid combined. Yet not so many years ago, these diseases occupied much of the attention of health authorities.

It seems reasonable and proper to believe that the time has come when every state and municipal health department should, yearly, spend some part of its appropriation in attempting the control of these diseases.

The Worcester District Medical Society's Committee on Venereal Diseases, of which the writer is a member, recently sent out to its members a pamphlet, a part of which is quoted below:

Syphilis infects about 5 to 10 per cent. of the adult population.
Syphilis causes about 20 per cent. of all insanity.

Syphilis causes about 10 per cent. of epilepsy.
Syphilis causes many of the idiotic and feeble-minded children.
Syphilis causes most cases of locomotor ataxia, many brain lesions and many spinal-cord diseases.
Syphilis causes most early apoplexies and many late ones.
Syphilis causes very many cardio-renal diseases.
Syphilis is to be looked for in many "indefinite ailments."
Syphilis causes much infant mortality and many abortions.
It is the one great hereditary disease.
Gonorrhœa infects a very large percentage of the adult population.
Gonorrhœa causes more than 10 per cent. of blindness.
Gonorrhœa causes a very large percentage of the pelvic operations upon women.
Gonorrhœa causes about one half of all cases of sterility.
Gonorrhœa causes much joint disease and other septic conditions.
Practically all prostitutes are infected with one or both of these diseases.

We have made a start to attack this problem in Worcester. Late in 1913 the City Hospital established a Wassermann department in its laboratory. We have sheep, rabbits, and guinea pigs, the blood of each of which is used in the Wassermann test as done in this laboratory. We added to the equipment a high-powered centrifuge, a "still" for distilled water, water baths, special incubators, and a dark field microscope for the quick detection of spirochaete in primary lesions, mucous patches, etc. During the past year over 1,500 Wassermann tests for syphilis were made—not many in number, but highly interesting and instructive. This work has, I believe, proved of great value to the hospital. We have done a small number of complement fixation tests for gonorrhœa.

For the benefit of those about to establish a Wassermann laboratory in municipal work, I will add a word of caution. Remember that the complement fixation test is a difficult one, with many pitfalls. It requires special training and enthusiasm in serological work. It requires great accuracy. I cannot conceive anything worse in a community than would be the reports from an unreliable Wassermann laboratory.

The Worcester Health Department in January, 1915, voted to furnish, free, complement fixation tests for syphilis and gonorrhœa to all physicians of the city. The department has made arrangements to have this work done at the City Hospital laboratory.

Probably for the health departments of smaller cities undertaking Wassermann work, it would be advantageous to have the tests made at a local hospital having facilities for this work.

We expect that the City Hospital will in the near future establish a Department of Venereal Diseases, both for bed cases and out-patient cases, with probably an evening clinic once a week.

We have, also, by vote of the District Medical Society, appointed a number of physicians to give lectures before different clubs and associations on the subject of "Venereal Diseases." Thus we have made a be-

ginning in Worcester. We don't expect miracles, but we look forward with hope that good will come from this beginning. Now, in a very imperfect way, I want to review with you some facts about the venereal problem, to show its magnitude and to impress upon you the great opportunity of public health departments to meet this situation.

I believe in preventive medicine, in a greater and greater control of diseases by the national, state and municipal departments of health. I believe that the great problems of present-day medicine of the future can probably be better solved by central authorities than by individual doctors. As I look into the future, it seems clear that a greater and greater percentage of medical men will devote their entire time to national, state and municipal departments of health and to the hospitals which will be under their control.

There are many problems in medicine, but I desire to call your attention to the venereal problem, the great black plague, the great untouched problem of present-day medicine, surrounded by ignorance, protected by false modesty and regarded as secret and shameful in character. Too long have we, day by day, gone about our work, simply picking up and caring for those either innocently or in guilt struck down, killed or wounded by those two malignant germs, the treponema pallida and the gonococcus. It is a question involving not only medicine, but morals. Its long neglect is a shame upon those three great forces in the community which, united, could and must solve this problem. I refer to our profession, the church and to educational institutions, and to medical men properly should the bulk of the work fall. We must be the leaders, for it will be no easy task. There will be a lively opposition. Good legislation cannot accomplish anything important, unless public opinion endorses it.

The general public is entirely ignorant of the magnitude and severity of venereal diseases. I believe even that the medical profession in general has not a clear idea of the amount of venereal disease existing in every community. It looks almost like a hopeless task, almost like the task of changing human nature, to attack this problem successfully. It is a problem which affects so many departments of life; much of it so vile that many will fear to have it disturbed, and bound up so inseparably with that ignoble pair, prostitution and alcohol. But great and difficult as this problem is, I believe that it can be to a large degree successfully handled, and that the chief factor in it must be public medicine, that is, the health departments.

Statistical Evidence Showing How Widely the Community is Infected with Venereal Diseases.

The more statistics you obtain the greater are you impressed with the seriousness of existing conditions and the more you are impressed with the

apathy of both the medical profession and the laity. From the nature of the case it is difficult to get a true light on the statistical situation throughout any given community. But it can be approximated. Many statistics are wild, inaccurate, based on some man's guess. But the statistics which I present now I believe are accurate and may be taken as a guide in estimating the havoc of these diseases. I have said that statistics are hard to gather, and you have but to look at death returns to realize it. If you study them, alone, you will think that these diseases are rarities. If you read hospital statistics and institutional reports you will think that there is no occasion to worry. And why? Because a spade is not called a spade, and any name except the true one goes down. If death returns should be put under syphilis, as they certainly ought to be put, the deaths from paresis, locomotor ataxia, other cord diseases, many coarse brain lesions, a considerable percentage of all apoplexies and nearly all early apoplexies—that is under forty years of age—almost all cases of aneurysm, a very large number of heart diseases and nephritis caused by the arterial degeneration of syphilis (the relation of syphilis to heart disease is an extremely important one and greatly underestimated)—if this were done the tables would read far differently, and we should find that syphilis was easily within the first six great diseases that destroy human life.

And it is much the same with statistics of gonorrhœa. The tables do not show much, but it is there just the same. Deaths from almost all cases of suppurative salpingitis, many cases of abortion and peritonitis, due to an infected endometrium; many cases of unrecognized gonorrhœal rheumatism and endocarditis, and many cases of acute and chronic pyelonephritis should be classified under deaths caused by gonorrhœa. I have spoken only of the fatalities of these two diseases. Who knows the number of lives wholly or partially wrecked by these two germs, the treponema pallida and the gonococcus?

Now come some figures which you must all agree are accurate and convincing to show that there is need of an awakening of the public and the medical conscience.

First, the reports of the surgeon-generals of the army and navy. Probably there is no exaggeration here as they cannot be proud of it,—for our army and navy is, I believe, more infected with venereal diseases than any other army or navy in the world. In 1912, with an army strength of about 78,000 men, there were 2,224 cases of syphilis, 6,208 cases of gonorrhœa, and 2,207 cases of chancroid; about 10,699 cases of venereal diseases, and this despite four years of prophylactic treatment,—that is, compulsory reporting at once on returning from exposure. The previous years were much worse. Fifty per cent. of some colored regiments in the Philippines were infected with venereal diseases in one year. In 1912 there were more discharges for disability on account of venereal diseases

than for any other one cause. In the navy, with about 41,000 men, including the marine corps, there were in 1911, 1,665 cases of syphilis, 5,658 of gonorrhœa, and 1,929 chancroid, a total of 9,252 cases of venereal diseases. In 1912 there were about 300 fewer cases.

This certainly is a serious state of affairs, when about 25 per cent. in the navy are infected.

Now come the statistics furnished by the insane hospitals. Most important, most impressive! All experts admit that the three great causes of insanity are syphilis, alcohol and heredity; and of the hereditary cases how many are in some way influenced by syphilis? For we know the deadly action of the treponema upon nerve tissue. Think of this when you call to mind the millions of insane throughout the entire world, and again I ask if it is not time for every nation to consider this question seriously.

During the year 1913, at the Boston Psychopathic Hospital, out of 1,671 admissions it was found that 246 had positive Wassermanns, *i. e.*, about 15 per cent. At the Danvers State Hospital for the insane, for the year ending September 30, 1913, all cases were tested for syphilis and 20 per cent. were found positive. Think of it—one in every five! What a burden to the state. What untold personal and family suffering. The reports of practically all the insane hospitals of the world run from 10 to 20 per cent. of syphilitics. That one piece of evidence ought to be enough to "wake up" the public and the medical profession and the lawmakers, yet it doesn't seem to be.

It has a direct bearing also on epilepsy, for at the State Hospital for Epileptics at Monson 47 consecutive admissions were recently tested and 10 per cent. were found syphilitic.

The Massachusetts Commission for the Blind state that of 301 cases of total blindness treated at three Boston hospitals the past year, 10 per cent. were due to syphilis and gonorrhœa. Applying this to the 4,000 odd blind people in Massachusetts we should find that over 400 persons in this state are totally blind from these two diseases. Neisser reported that there were 30,000 people blind in Germany on account of venereal diseases. There are 64,000 blind persons in the United States, and 10 per cent. of these are due to the gonococcus alone. Of all the blind children in the blind institutions of this country it is estimated that 25 to 30 per cent. are there on account of gonorrhœa. Fortunately these figures will be lower in the future on account of the prophylactic treatment of the eyes with nitrate of silver or argyrol immediately after the birth of the child.

Here is another bit of evidence from our state industrial schools. Ninety girls just entering prostitution were examined, and 21 we found to have syphilis, 31 to have gonorrhœa and 4 to have both diseases. That is, 62 per cent. were venereally infected. Of 100 prostitutes examined at the Charles

Street Jail, the Suffolk County House of Correction and the Woman's Reformatory, 11 had syphilis, 32 had gonorrhœa, and 27 had both. In 20 the presence or absence of these diseases was not determined. Of 80 women, 70, or 87½ per cent., had one or both of these diseases.

Even worse in its showing is a careful examination of 466 young women at the Bedford Woman's Reformatory of New York, where only 10 per cent. were free from disease, that is 90 per cent. were infected with either syphilis or gonorrhœa.

In a recent inquiry concerning 8,000 male patients over 18 years of age admitted to a Boston hospital for all sorts of medical and surgical cases 35 per cent. admitted had had gonorrhœa and 11 per cent. syphilis at some period of their lives.

It would be an easy matter to multiply these credible statistics tenfold, but these show clearly enough that there is truth in the statement that one half of the male population of civilized countries has had or now has gonorrhœa, and that probably more than one-tenth has had either acquired or congenital syphilis. Even if this were only one-fourth true, why do medical men and health authorities keep up this policy of "watchful waiting"?

It would be a waste of time to go into a historical account of syphilis and gonorrhœa, but I want to review with you in a brief way a few points.

More has been learned about syphilis in the last ten years than in all the centuries gone by, a wonderful renaissance, which began with the discovery of the real germ of this disease in 1905 by Schaudin in Germany. It is interesting to note that over 125 supposed discoveries of the germ of syphilis had been made before the real discovery came. In 1906 the discovery of the complement fixation blood test was announced by Wassermann, also a German, and a little later came Ehrlich's salvarsan, also "made in Germany." What a revelation these three have been. Not long after, at the Rockefeller Institute in New York, Noguchi announced his isolating and growing of the spirochæte, and then came animal inoculations and the Luetin test. Each of these discoveries is being used daily in attacking syphilis.

Today we can in most cases diagnose syphilis the moment the chancre appears, simply by expressing a bit of serum from it or a neighboring gland, then placing it on a slide and with the dark field apparatus seeing the spirochæte alive and wriggling under the microscope.

Unfortunately the Wassermann test is not practical until two or three or more weeks after the appearance of the initial lesion, and it is a cruel thing, almost criminal, to wait for the secondaries before beginning active, vigorous treatment with both salvarsan and mercury, for during the month or so that elapses before the secondaries appear the body is filled in every nook and corner with millions of spirochætes. Strike early and strike hard, for then is your best perhaps your only chance to really cure a case of syphilis, and by so doing you render that individual in the early stage

practically unable to spread the disease, a measure of great public importance, in wild young men and prostitutes especially.

Use the Wassermann test not only for diagnosis, but also as a guide to treatment. You will be disappointed often enough, whether you use salvarsan or mercury, or both, at the Wassermann becoming positive after an interval of perhaps months of being negative. But this means that there are living spirochætes within the body, and not until the last spirochæte is dead have you truly cured your patient.

The present opinion of many of the best experts seems to be that only a small percentage of cases are ever really cured, for the spirochæte attacks every organ of the body, the brain, cord and nerves, more often than is suspected the heart and arteries. You will hear more and more in the future of syphilis of the lungs. So that in almost any ill-defined chronic case you may be repaid if you make a blood test.

Today we know the germs that cause syphilis and gonorrhœa. We have practically accurate laboratory methods of diagnosis. These laboratory methods should be extended to every physician in this Commonwealth, to aid him in diagnosis and treatment. Too often, now, are they entirely overlooked or imperfectly treated.

Recommendations.

To accomplish something in attacking the venereal problem I have in my own mind a few definite ideas.

I should like to see appointed a committee from this Association, a committee on the control of venereal diseases.

I should like to see this committee, among other things, consider especially:

(1) The advisability of making syphilis and gonorrhœa reportable diseases.

(2) The advisability of securing the passage of a law making these records private records. As I understand the state law now, all board of health records are public records, and anybody can inspect them, which of course could not be allowed in the case of syphilis and gonorrhœa.

(3) The advisability of the committee conferring with the health commissioner of this state to secure the establishment of a state Wassermann laboratory, a laboratory to which the workers in the municipal laboratories could go to improve their knowledge, and to establish a uniform technique throughout the state.

(4) The advisability of securing the passage of a law compelling public institutions to treat acute venereal disease.

Now as a final word, I believe that the venereal problem is peculiarly one for public health departments. For the sake of humanity, for the honor of public sanitation, let us take up this work.

THE REPORTING AND CONTROL OF VENEREAL DISEASES.

LOUIS CHARGIN, M. D.
Chief of the Division of Venereal Diseases, Department of Health, City of New York.

Read before the Massachusetts Association of Boards of Health, Boston, January 28, 1915.

AS A menace to the individual, the state and the race, the venereal diseases stand preëminent. The dire results following in their wake both physical and social are too well known to require mention here. Contemplate for a moment, if you will, the actual infection, the complications, the sequelæ, and last but not least the effect upon the future of civilization, and the wonder is that drastic measures have not been taken ere this.

Since the earliest times some efforts at control were attempted. "Prostitution and all its attended diseases . . . was abolished *in toto.* Isolation beyond the camp was practised. In the camp of Moses, the syphilitic could not destroy . . . humanity by propagation of his fearful disease." In 1126 England enacted a law threatening brothel keepers with a fine if they harbored diseased women and ordering regular visitations by physicians. Brothel regulations existed in Avignon in 1347, and similar laws were promulgated in Zurich in 1413. Regulations of the Council of Lucerne, directed against prostitution in 1469 and 1572, show that measures of control were put in force. But it was not until the advent of syphilis in its epidemic form that more generalized measures of public control were undertaken.

The modern prevention of syphilis dates back to the middle of the eighteenth century with attempts at registration in Rome and Naples, and soon thereafter, just before the French Revolution, the system of registration and regular examination of prostitutes was introduced into France. It is upon this system that most of continental Europe bases its control to the present time. The exceptions are Denmark and Norway where, since 1874 and 1876 respectively, there has existed a system of compulsory notification in one form or another to this day.

The system of control that has been in vogue throughout the continent of Europe is the so-called reglementation, which includes registration, segregation and examination of prostitutes. The foundation of this system is registration, without which it is impossible. If registration fails so must the system, so that in order to make it effective it is necessary to have a system of registration which is near perfect. That such attempts have failed will become manifest when it is stated, on the authority of Flexner, that of an estimated total of 50,000 to 60,000 prostitutes in Paris but 6,000 are registered; of 20,000 to 30,000 in Berlin, only 3,300 are regis-

tered. This holds true in other cities where registration is obligatory. Furthermore, the clandestine prostitute is one of the most fertile sources of the spread of the infection, and control over her by registration is well nigh impossible. Curiously enough, too, a fruitful source of infection, namely the male element, is entirely ignored. There are other reasons for the unsatisfactory working of this system. It must, therefore, be conceded that reglementation *per se* has proved a failure. That it has a certain value in that it neutralizes some foci of infection is true, but on the whole it is insufficient.

The New York City Board of Health has for many years laid down the principle that all infectious and preventable diseases and everything pertaining to their diagnosis and supervision properly fall within the scope of its activities. This attitude finds its justification in the following considerations. Is it not essential for the control of any infectious disease that its correct diagnosis be made rapidly and that the means for so doing be made readily accessible to all members of a community? Take the diseases under consideration. The greater the number of existing syphilities and gonorrhoics diagnosed and the more rapidly they are placed under treatment the more certain will our control of the diseases be.

Many sanitary officers agree that no distinction should be drawn between the venereal and other infectious diseases. If so, the fundamental principle which guides us in the one should guide us in the other. True, an antipathy toward them did exist and this has occasioned reluctance on the part of sanitary authorities to deal with them. The fact is they are infectious diseases and should be dealt with as such. Now the basis that underlies effective control of infectious diseases is complete information regarding them, and this is possible only by means of a system of notification and registration. The eventual and ideal object in view is through supervision, effective prophylaxis and treatment. These remarks apply especially to the diseases under consideration. So too a campaign of education, a diffusion of knowledge of its dangers is a matter of utmost importance. It is along these lines that the activities of the Health Department of the city of New York have taken root and are slowly, and we believe, effectively progressing. The initial step towards administrative control of the venereal diseases was taken by the board of health, April 4, 1911, when it was resolved that the "protection of the public health requires the early adoption of means for the sanitary control of venereal diseases." This was soon followed, December 8, 1911, by a further communication from the then general medical officer, Dr. Herman Biggs, detailing more fully the necessity for such action, with the result that the board of health with the sanction of the Advisory Committee, on February 20, 1912, adopted a set of resolutions, which abridged are as follows:

First: After May 20, 1912, officials in charge of public institutions will be required to

promptly report name, age, etc., of every patient under observation suffering from syphilis in every stage, chancroid or gonorrhœal infection of every kind, including gonorrhœal arthritis.

Second: That all physicians be requested merely to give similar information regarding cases under their care in private practice, leaving out name and address if they so desired.

Third: Such reports to be considered confidential.

Fourth: Facilities for bacteriological and serological diagnosis be provided.

Fifth: That the diagnostic facilities be extended only when complete data required for registration be furnished.

The sense of these resolutions, with some modifications based on experience, will be embodied in the section of the Sanitary Code of 1915 relating to venereal diseases, which will read:

Section 88: Duty of Superintendents of Hospitals and Dispensaries and of physicians, to report cases of venereal diseases.

It shall be the duty of the manager, superintendent or person in charge, of any correctional institution and of every public and private hospital, dispensary, clinic, asylum, or charitable institution in the city of New York, to promptly report to the Department of Health the name or initials, together with the sex, age, marital state and address of every occupant or inmate thereof or person treated therein affected with syphilis or gonorrhœa; and it shall also be the duty of every physician in the said city to promptly make a similar report to the Department of Health relative to any person found by such physician to be affected with syphilis or gonorrhœa. All reports made in accordance with the provision of this section, and all records of clinical or laboratory examinations indicating the presence of syphilis or gonorrhœa, shall be regarded as confidential, and shall not be open to inspection by the public or by any person other than the official custodian of such reports or records in the Department of Health, the commissioner of health, and such other persons as may be authorized by law to inspect such reports or records, nor shall the custodian of any such reports or records, the said commissioner of health, or any such other person divulge any part of any such report or record so as to disclose the identity of the person to whom it relates.

For the most part this section is self explanatory. Since we are for the present not doing supervisory work, it was deemed best to leave to the discretion of the individual physician the question of reporting cases by name. In justice to all no discrimination is made between institution, clinic or private cases; such was made in the original resolution of 1912. All reports are kept under lock and key and are inaccessible except as stated in the section. It will be noted that chanchroid was entirely omitted. This is owing to the mild character of the infection and to the fact that mediate infection is practically negligible. So, too, the stages of syphilis and the varieties of gonorrhœal affections are not specified since they are inclusive in the terms syphilis and gonorrhœa.

That opposition, varied, numerous and from different sources, was encountered one may readily surmise. But as in the case with tuberculosis, it is gradually but certainly disappearing so that the department has every reason to feel encouraged.

The history of the sanitary supervision of tuberculosis as developed in New York City offers a close parallel to the venereal problem, and the development of the latter is taking its course along similar lines. The

diagnostic facilities afforded physicians at the inception of the tuberculosis work has furnished the most important medium of inducing them to report their cases and it is precisely the same in our present undertaking; it is the laboratory through which most of the cases are reported.

As above stated, the department maintains that all facilities for the diagnosis of infectious preventable diseases properly fall within its province and, conforming thereto, it has provided every available means for the ready diagnosis of these diseases.

The Health Department laboratories perform the Wassermann Reaction and complement Fixation Test for gonorrhœa, examine smears for treponema and gonococci and make cultural examinations of urinary sediments and urethral discharges. These tests are made free of any cost. They are made for physicians and medical institutions only, to whom the findings are reported. In order to facilitate the transferring of specimens the diagnostic outfits are distributed to some six hundred stations in drug stores and hospitals scattered throughout the city, from which stations they are daily collected and conveyed to the department laboratory. The extent to which physicians and hospitals have availed themselves of the opportunity may be gauged from the figures of 1914 which show a total number of 57,724 specimens being handled.

	1914	*Positive*	*1913*	*Positive*
Wassermann Tests	42,415	13,870	18,750	7,602
Complement Fixation Tests	9,441	2,099	3,526	690
Smears	5,868	1,381	2,105	632

The total number of venereal disease cases reported for the year 1914 is: Syphilis, 21,155; gonorrhœa, 9,526; chancroid, 517.

There have also been established three diagnostic clinics, two in Manhattan and one in Brooklyn, where patients may be sent by their physicians or institutions for the blood-letting operation, smears, etc. These clinics are well patronized, the total attendance for the year just ended being 19,297.

Principally as an educational factor an advisory clinic was established which acts as a sort of clearing house for venereal diseases. Here free advice is given regarding the nature of these diseases, the danger of improper treatment is pointed out, the necessity for strict adherence to their physician's orders, the danger of consulting quacks, the importance of abstention, while diseased, etc.

Educational pamphlets, describing the diseases in simple language, and cards of instruction are issued. Under no circumstances is treatment of any character given. Cases that require treatment and cannot afford the services of a private physician are referred to any of a number of accredited clinics in the various parts of the city. These clinics, in order to be

placed upon the approved list, must comply with the requirements of the Genito-Urinary Section of the Associated Out-Patient Clinics of the City of New York. Patients that can afford private treatment are directed, through these clinics, to one or another of the specialists attending the approved clinics; 1,427 patients attended our advisory clinic during the past year.

An analysis of the chart shows that by far the males predominate. Presumably the female element, perhaps because of fear of publicity, reluctantly attend. It is interesting to note that more married than single individuals consulted us. This may be accounted for by the fact that, being older, they are more staid and consequently are more concerned about their ailments. Of 1,180 cases tabulated, 560 were either suspected or actual luetics, 360 suspected or actual gonorrhoics, 77 suffered from sex neuroses of one type or another, and 115 were other than sex diseases.

Part of our educational campaign consists in combating quackery. This is one of the most difficult problems with which we have to contend. Their victims are many, usually foreigners (with a heavy admixture of apparently intelligent citizens) whom they find easy dupes. What could not be said regarding the methods of this unscrupulous class! Two possible means of attack present themselves. One is to legislate them out of existence. There exists a law which empowers the regents to revoke the license of practitioners found guilty of fraud, etc. But how difficult it is to prove fraud! The board of aldermen have recently passed a bill making persons whose assertions represent untruths, etc., liable to a fine. An attempt is being made at the present time to test it out. The second means of attack is the diverting from these quacks of prospective victims. This we do by a four-line advertisement which we run parallel with their own in some of the New York English and foreign press. It reads:

FREE ADVICE regarding venereal diseases can be obtained at the Department of Health' 149 Centre Street, Room 207, from 9 a. m. to 12 m. daily. Sundays and holidays excepted. Consultation strictly confidential.

The value of this advertisement may be judged from the figures of December, 1914, when of a total of 200 patients seen by the medical advisor, 72 reached us through the advertisement, and of these 72, 36 had consulted one or more quacks. Another means which we believe will prove very effective is the placing of "Venereal Disease" signs in suitable locations, such as toilets and bulletin boards of railroad stations, terminals, factories, saloons, department stores, etc. These signs read:

VENEREAL DISEASES
CONFIDENTIAL ADVICE
REGARDING
GONORRHŒA SYPHILIS
AND
SEX DISEASES
CAN BE OBTAINED FREE
AT ROOM 207
THE DEPARTMENT OF HEALTH
149 CENTRE STREET
9 A. M. to 12 M. DAILY
SUNDAY AND HOLIDAYS EXCEPTED
AVOID
ADVERTISING SPECIALISTS AND
PATENT MEDICINES

During the same December, 26 persons consulted us through these signs, though we have but a small number, about 150, distributed.

No system of control can be complete without ample hospital and dispensary facilities for the treatment of indigent and infectious cases. Although we must not lose sight of the fact that those with infectious lesions are properly hospital cases, the venereal diseases are essentially well adapted to dispensary treatment. This somewhat simplifies the problem.

While a number of our clinics are in every sense adequate, it is unfortunately true that the efficiency of the majority may well be questioned, in that they are not equipped for modern diagnosis and treatment. Under the instigation of the Genito-Urinary Section of the Associated Out-Patient Clinics, conditions are, however, improving and we look forward to a better state of affairs in the near future. Regarding hospital accommodation, it may be said that there are available at the present time some 300 beds in our city institutions exclusively for venereal diseases, and it must be admitted that, without greatly increased facilities—a matter insisted on by Doctor Biggs—we must of a necessity be hampered in our control of actively infectious cases. It is gratifying to report that sufficient funds have been allowed for the construction of an added pavilion to one of our municipal hospitals.

In this connection it may with truth be said that any outlay of funds now for the purpose of constructing additional wards is in reality an economy. For, with competent facilities, modern and early treatment, may we not with justice hope that syphilis will be robbed of its great terror—tertiarism? And with it may we not expect a saving in the great economic loss which it entails?

The purely educational propaganda forms an important feature in the plan of our campaign. The educational force must overcome the prejudice of centuries and will of a necessity be slow, but certain it is, as in the case with tuberculosis, publicity as a factor in combating the venereal

diseases is becoming a recognized procedure. A comprehensive plan embraces the social, economic and medical aspects. It is a coalition of the forces which will finally conquer, but as health officers we are concerned only with the last named, working, however, in concert with all the other agencies.

This is probably the least developed of our forces but it is gradually increasing in strength and will certainly become a powerful, in fact, the powerful agent in our possession. Already the public is awakened to its importance and is making frequent requests for lectures on the subject. Similar requests come to us from other sources such as schools, clubs and other organizations.

As an instance may be cited a recent public meeting in Cooper Union at which a symposium on the subject of venereal diseases was held. This was attended by a mixed audience of more than 1,500 adults and was followed by free-for-all discussion from every angle. A remark made by one of the speakers of the evening is significant. He stated that it was his belief that a public meeting, such as was then taking place, was hardly conceivable but a few years ago.

Our aim should be to reach all classes of society.

To the younger element there should be imparted a graded course of instruction regarding sex function and hygiene. The more mature should be instructed in the meaning of sex diseases and, in the words of Morrow, "To all we must speak plainly, but sanely, clearly but cleanly, scientifically but simply."

The writer wishes to express his thanks to Doctor John S. Billings, director, Bureau of Infectious Diseases, for many suggestions, and to Dr. Archibald McNeil for some of the statistics quoted.

Discussion.

Dr. J. W. Voss of Beverly: Discussion of this subject seems to be apropos as nothing can be of more interest to sanitarians than the control of venereal diseases. Gonorrhœa, so far as my observation extends, causes more unhappiness in the human family than all the rest of diseases put together. Syphilis is extremely prevalent and easily acquired. It was only a few days ago that I heard one authority state that 50 per cent. of syphilis was communicated outside of venery. Syphilis is just as loathsome as any leper who never did anybody any harm and can be segregated on the barren island of Penikese, simply on account of our biblical Sunday-school teaching that a leper is an unclean person. In deference to prudery, and through a long period of introspection, we have allowed a dense cloud of ignorance to befog this whole subject because we believe the people's private troubles are to be the subject of garrulous conversation. We had the same objection in 1907 when tuberculosis was required to be reportable. Who would think of going back to those former conditions? These excellent papers show what can be done and show that New York City and New York State are far ahead of us in the control of communicable diseases. Nothing at all is being done in this state. They have no standing as diseases under the law, are discriminated against in

our hospitals and nothing is done in this state to prevent their spread. It frequently happens when a dangerous focus of venereal diseases is brought to the attention of health authorities they refuse to act, claiming, forsooth, they have no power to act, that they cannot spend their appropriation for this purpose, as the central health authority has not considered them diseases dangerous to the public health.

Dr. Palmer: Mr. President, I have been intensely interested in the two papers read today, and I don't think any measure of value can be put upon them as regards their importance. We had a committee of this society for a number of years which did some preliminary work along these lines. I think most physicians and a great many laymen recognize the importance and the danger of these venereal diseases, but while we recognize them so far we have been inactive in a public way in controlling them. A great deal can be done through the public officials, probably more can be done through the public officials than by any amount of social or educational work, but I think both are equally important. I think the public is far more willing to be taught than the physicians, as a class, are willing to teach them. That is my experience. If in other parts of the state there is the same interest that there is in my section, where for several years I have been called to speak before all sorts of societies on the venereal peril, I think it can easily be brought about in the near future that we can control these diseases better than they have been controlled.

The President: Dr. Palmer has alluded here to something that the Association has done in this line of work, and I want to say that some years ago a committee, of which Dr. Palmer was chairman I believe, was appointed by the Association, and some knowledge of the spread of these diseases and some of their dangers was brought to the attention of the Association in a pamphlet which the committee adopted.* For a great many years I was secretary of this Association, and I had demands for that pamphlet from all sections of the country. So that this Association was early in the field along this line of endeavor, and our blazing the trail was recognized by those demands that came from all over the United States to me when I was secretary for copies of that pamphlet. Those demands still continue, I believe, but the pamphlet is now furnished by one of the civic societies on Joy Street in this city, who have taken it up. The pamphlet was of such value in their estimation that they have taken it up as a matter of duty and have undertaken the cost of printing and circulating it. I thought I would give that explanation for the benefit of those who were not members some years ago when this work was done.

Mr. Charles W. Birtwell: May I simply correct the chairman, in order that you may have the exact title of the society he referred to? Those circulars, called Sex Hygiene Circulars, Nos. 1, 2 and 3, are now distributed for the Committee on Sex Hygiene, of which Dr. Palmer is still chairman, by the Massachusetts Society for Sex Education, of which Dr. Henry P. Walcott is president and Dr. Charles W. Eliot, vice-president. The office of the society is at 6 Hancock Avenue, that little path to the west of the State House lawn. As its secretary I happen to have in my hand in acknowledgment of copies of Circular No. 3, a statement from the head of a large business organization: "We find these circulars of vast help to our girls." Circular No. 1 bears the title: For Young Men; No. 2, Information for Persons Having Venereal Disease; No. 3, Information for Young Women. We have them in four languages beside English: Italian, Greek, Polish and Portuguese, and are contemplating printing them in other languages.

Dr. Whitehouse: In regard to the propaganda of public education on sex lines, I have had the personal pleasure of being called upon to examine young men contemplating marriage I think half a dozen times since the middle of last winter, and on further questioning these requests have been a direct result of having seen a certain play, the title of which was "Damaged Goods." The play seems to have made a most profound impression on the young people.

* See further information in following remarks by Mr. Birtwell.

EVENING CLINICS FOR SYPHILIS AND GONORRHŒA.

MICHAEL M. DAVIS, JR., PH. D.,
Director of the Boston Dispensary.

Read before the Massachusetts Association of Boards of Health, Boston, January 23, 1915.

THE subject that I am to speak upon is rather the side of treatment, than the side of diagnosis, which has been chiefly dealt with by the other speakers. One may approach these diseases from three standpoints: The standpoint of the clinic, from which syphilis and gonorrhœa are diseases requiring treatment; the standpoint of the public health officer, to whom they are dangerous infectious diseases, requiring various preventive and remedial measures; and the standpoint of the general public, or the social standpoint, from which each of these diseases presents all kinds of public problems, relating to a wide field, from the liquor traffic and prostitution to police administration, family life, and many other things not excluding politics.

The practical consideration which faces one who is concerned with institutional work is the problem of not only providing facilities for diagnosis but of affording adequate facilities for treatment. In approaching these diseases from the standpoint of the public health officer we are faced with the veil of secrecy, or false modesty as one of the previous speakers today has called it, and that is surely the chief reason why we have difficulty —it seems to me the most fundamental difficulty in this whole matter— of applying the public health point of view, which is the only point of view that can solve such a problem as this. We find it impossible to deal with syphilis and gonorrhœa in the way that ordinary infectious diseases, much less dangerous, can be dealt with. Furthermore, syphilis and gonorrhœa have other relationships. They are difficult to cure, requiring a long time. Because of that, the treatment is rather expensive, and the diseases from the treatment standpoint have been proved by practical experience to be good business, which causes them to be rather more involved in certain kinds of irregular medical practice, than most disorders which mortals are heir to.

To answer the question why we need evening clinics, as it seems to me we do, I should like to begin by propounding this inquiry: What treatment facilities do we *now* have for syphilis and gonorrhœa? There are four:

1. Private medical practice;

2. Hospitals and out-patient clinics, the latter the more important, for, as others have said, the bulk of treatment of syphilis and gonorrhœa is ambulatory treatment;

3. Irregular medical practice—advertising experts, quacks, correspondence institutes; and finally

4. Self-treatment, *i. e.*, treatment of a patient by drugs which he buys himself on the recommendation of friends or from the advertisements which he sees or which are given to him through certain agencies.

Now the question is, whether or not the *good pair* of this list of four treatment agencies are adequate to meet the needs of the public.

We will all agree that quack practice and self-treatment are undesirable. I do not know that any one has any data showing the relative number of cases cared for by private medical practice, clinics and hospitals, quack practice and self-treatment. I have been unable to find any data as to their relative amount in any community. Undoubtedly, however, the amount of quack practice and the amount of self-treatment is large. There has been some testimony on that today. I can only mention one item that came to my notice a few days ago in reading a paper by Dr. John H. Cunningham, Jr., of Boston, published a couple of years ago in the *Boston Medical and Surgical Journal*, in which he referred to nine agencies advertising the treatment of venereal diseases in Boston, and said that on the best authority that he had been able to secure, one of these agencies was making an income of $50,000 and another $35,000 a year. Whether or not the figures are correct, and he did not seem to place any great reliance on their exact accuracy, the amount of such practice is undoubtedly considerable. The mere existence of such agencies seems clear proof that private practice and clinics together are not filling the needs of the public for the treatment of syphilis and gonorrhœa.

Can private practice become adequate to meet the need, or must we depend upon clinics? If we could stop all treatment by irregular practitioners and all treatment by drugs not prescribed by physicians, would private practice take up the slack? I don't suppose one can answer that question except *a priori*, but if private practice is active and reasonably aggressive in a proper way and desires to enlarge itself, and if irregular and undesirable agencies of treatment nevertheless persist, it seems a question whether private practice would be able to take up the slack, even if we pressed more hardly than we now do upon the undesirable agencies. Undoubtedly in recent years there has been a growth in the number of clinics treating syphilis and gonorrhœa, and in the number of patients treated by such clinics. With the present trend in medicine we may probably anticipate a further development of clinical work for the treatment of many diseases, and perhaps especially for the treatment of syphilis and gonorrhœa. For one thing, in the offices of private doctors, or at least in offices which are open on fees available to the mass of the working people, the diagnostic facilities are, so far as I learn from the testimony of medical friends, very generally inadequate and below modern standards. How many such offices would have cystoscopes, facilities for Wassermann tests, or dark-field microscopes? These are not frequent in private offices,

for the cost usually puts them out of the question. A clinic in an institution which has any pretensions to a decent standing can be expected and can be compelled, ought to be compelled, to provide such diagnostic facilities; and if that is true, and if we are going to press, as we should, more and more hardly upon the undesirable facilities of treatment, we must open up more and more facilities for the clinical treatment of syphilis and gonorrhœa.

I think our point of view has undergone a tremendous change even in the last few years. Not long ago I was talking with a physician whose memory goes back long before I was born, and he told me his father could remember the time, in Boston, when two of the oldest and largest institutions with out-patient clinics, the Boston Dispensary and the Boston City Hospital, forbade the treatment of syphilis and gonorrhœa on the ground that the persons coming with those diseases were unworthy objects of charity, having acquired disease as a result of their own sensual indulgence. The contrast between that point of view and the present point of view of the public health officer, who sees the necessity of treating people for the protection of the community, if for no other reason, is a very wide one. And yet only two days ago a man who is connected with a prominent organization in Boston asked me whether the Boston Dispensary treated venereal disease and whether it was a proper thing for an organization, supported by charitable gifts, to treat people who were as wicked as he supposed all the sufferers from syphilis and gonorrhœa must necessarily be. He asked me that question in all seriousness. By the smile on some of your faces I see his point of view does not agree with yours. Your smile breaks forth because you are applying the public health point of view.

Now to come to the subject from which, perhaps, I appear to have wandered,—evening clinics. I have been trying to indicate the importance of out-patient clinics, as one of the factors, and an important factor, in the treatment of syphilis and gonorrhœa. Evening clinics to my mind are important, and indeed essential, because if we are to have clinical treatment it must be efficient treatment. Can clinical treatment be efficient? Can we measure the efficiency of treatment of syphilis and gonorrhœa? It is difficult to measure that efficiency in terms of the proportion of cured cases, because it is often impossible to state with scientific assurance that a case of syphilis or gonorrhœa has been cured.

On the other hand, we can measure the negative side with considerable ease and accuracy, and reach the conclusion that much clinical treatment, as it exists today, is extremely inefficient and that we are wasting a large part of our money and time. Efficiency tests can be made quite simply by a simple process of *counting*, after asking ourselves this question: What proportion of 100 or of 1,000 patients coming with gonorrhœa, we will say, to an out-patient clinic, pay only one or two visits to the clinic?

A patient with acute gonorrhœa, who pays only one or two visits, is not going away cured, or even sufficiently relieved to make the clinic feel that it has done a satisfactory job. I think all medical men will agree with that. Yet in two clinics in which such tests were made, it was found that 30 to 40 per cent. of patients taken at random, men coming with acute gonorrhœa, ceased treatment after not more than two visits, and from 50 to 60 per cent. after less than six visits. Tests have been made quite independently in the male genito-urinary clinics at the Boston Dispensary and Lakeside Hospital at Cleveland, the percentages running closely together along the levels that I have mentioned. If that is true, and I am inclined to think that most clinics which test themselves in this way (all clinics should) will be surprised at the percentages they find. We must ask ourselves: Why is this so? What are the reasons for this inefficiency?

There are, at least, four main reasons: First, and perhaps the most common reason for inefficient work in an out-patient clinic for syphilis or gonorrhœa, is too many patients per doctor; second is lack of adequate equipment for diagnosis and treatment; third, lack of any follow-up system which brings patients back for treatment, and, fourth, the expense to the patient of leaving work to come to the clinic for treatment, most of the patients being working people. The two largest factors in inefficiency of treatment are, I think, the first and the fourth; *i. e.*, too many patients per doctor, or otherwise put, too small medical staffs giving too little time; and the cost to the patient of leaving work to come for treatment, particularly with diseases that require such frequent and long-continued treatments as syphilis and gonorrhœa. It is this fourth factor which, to my mind, necessitates holding clinics in the evening, when working people can come without loss of wages.

We might just for a moment turn to the other side and ask ourselves what the conditions of *efficiency* are. Something has been said about the standard of equipment as outlined by the Association of Out-patient Clinics of New York. I happen to have been quite closely in touch with those recommendations of that association, and, as Dr. Chargin knows, they relate primarily to equipment, *i. e.*, equipment of clinics for proper diagnostic work. But the lack of adequate medical service and the lack of any follow-up system and social service, are just as important factors in efficiency of treatment as the equipment of the clinic. They all ought to go together.

But the factor which I want to emphasize at this moment is the cost to working people of giving their time, which usually means at least two hours and as a rule more nearly a half day, to go to a clinic to get treatment. With that in mind the Boston Dispensary, some months ago, established evening clinics for syphilis and gonorrhœa. We were led to that step by these considerations, and by a further consideration very much forced

upon our attention in the neighborhood in which the Boston Dispensary is located, namely the fact that while all the clinics in the local medical institutions are open only in the daytime, all the quacks work nights! Last March, shortly after we opened our evening genito-urinary clinic, which is practically a gonorrhœa clinic for men, I was handed a small card on Shawmut Avenue, not far from the Boston Dispensary, by a man evidently in the employ of one of the irregular practitioners in that district, advertising a "clinic" and mentioning of course the evening hours. I had the pleasure of sending it to a well-known surgeon in Boston who was helping us to open our evening clinic, congratulating him on being able to compete successfully with that kind of practice!

I wish to say just a word, purely in the way of illustrating some of the points concerning evening clinics, about the evening clinics for syphilis and gonorrhœa at the Boston Dispensary. We began an evening clinic for gonorrhœa among men in March, 1914. It has been running now ten months, three nights a week, the medical service being salaried, the fee charged patients being fifty cents a visit, although patients who can pay nothing and who cannot come in the daytime are not refused. Medicines are furnished at prices slightly above cost, that is at the same rates that we charge in the morning clinic, though patients, again, will be given their medicines free if they cannot pay for them. We have treated thus far (with clinics that now average nearly fifty a night), 476 patients, who have paid 5,371 visits, an average of about eleven and one-half visits per patient. A syphilis clinic on similar lines was established less than six months ago, one night a week, and though somewhat hampered with by the lack of salvarsan during its opening months, has been running thus far rather successfully with the same plan of a salaried medical staff and the same fees.

We have found out some interesting things from these evening clinics on this small-fee basis. In the first place, they have been self-supporting. They have paid all their running expenses, not counting overhead charges, but including all the running expenses, that is, the salaries of the physicians, nurses and clerks, the supplies used, the medicines, and a charge for lighting and heating of the parts of the building used. These clinics have drawn largely a class of working men, many of whom will come to a morning clinic when they are frightened about themselves, as in the beginning of a case of syphilis or in the case of gonorrhœa, when they are uncomfortable, but as soon as the more acute symptoms are relieved these men find it impossible to leave work once a week, much less two or three times a week, for treatment, without losing a great deal of wages or even their jobs. Many men who were attending our morning clinics at the time we opened the evening clinics begged to be transferred to the evening service, preferring to come in the evening two or three times a week and

pay fifty cents a night, rather than come in the morning and pay nothing. It was cheaper for them, and I am sure better for the community.

You may ask the question: Why open evening clinics and charge a fee for admission so that you keep away the people who cannot pay anything? I am perfectly aware of the need of an evening clinic without a fifty-cent fee, but in starting an evening service I have been desirous to see it on a basis of efficiency. This seemed to me to require a salaried medical staff, and, furthermore, that we should reach a class of people who could perhaps afford to pay the fees at private offices for a few visits but who could not afford to pay the total cost of a complete course of treatment running over the long period that syphilis and gonorrhœa require. There is a class, and a large class, between those persons who can pay fees for adequate medical treatment in private offices and those who can pay practically no fees for treatment, and this middle class today is probably the most neglected group in the community. I am also well convinced that it would be possible to start a clinic on a fifty-cent fee basis and broaden it later in the direction of a clinic with a ten-cent fee or no fee, whereas it would be much more difficult to start on a nominal fee basis and then push the fee up. Whether or not the two classes of patients can be combined in one clinic in the evening I question. That is a matter to be solved in the future.

Let me before closing speak of one thing that is probably in the minds of you all. What about the relationship of such clinics to private medical practice? The evening clinic in New York City, as I happened to hear recently from Dr. Goldwater at his recent visit to Boston, has been strongly opposed by sections, and I imagine rather influential sections, of the medical practitioners in New York City, and so strongly opposed that many attempts to open evening clinics, either under the auspices of the Board of Health or of private institutions, have thus far been blocked. There are a few evening venereal clinics open in New York, though a physician recently said to me of one of them that its medical standard was low. It is unfortunate that opposition has crystallized in New York against evening clinics. Fortunately in Boston, and I hope elsewhere in Massachusetts from what Dr. Baker said about the possibility of opening an evening clinic in Worcester, there is at present no aggressive opposition to them here. We must, however, bear in mind that just because the treatment of syphilis and gonorrhœa is in the financial sense profitable from a practitioner's point of view, we are likely to find an antagonism to the establishment of any large number of evening clinics. It seems to me that we can only meet that opposition squarely and frankly. Doubtless there will be definite opposition in the future, if we have not faced it already, between the point of view of the practitioner who sees an immediate personal interest, and the point of view of the public health officer who

sees the public interest. I cannot believe that in the long run the point of view of the medical profession, even as represented by the practising end of it, and the point of view of the community in health matters, as represented by the public health official, can run counter to one another. In the long run surely the point of view of the community, the needs of the community, must prevail.

In summary, it seems to me that the time has gone by when we can fail to apply the public health point of view to such urgent problems as syphilis and gonorrhœa present. The veil of false modesty that cloaks these diseases and the discussion of their problems must be pierced. We must face frankly the large amount of inadequate treatment and irregular practice of these diseases today, and must make the worthy kinds of treatment adequate and efficient. We must make them adequate by having enough of them. Since private practice is not adequate we must supplement it by clinics, and we must make those clinics efficient by giving them the proper equipment, sufficient follow-up systems, enough medical staffs (salaried if necessary) and above all by holding them at hours and under conditions which render them really accessible to the people who need them—both the people who can pay nothing and the people who can pay something and who would rather meet their own expenses, pay what they can, than be "objects of charity." The development of clinics for the treatment or prophylaxis of syphilis and gonorrhœa should not be regarded as a function of charity but as a matter of public health.

Discussion.

Dr. Voss. I would like to ask the speaker if there is any place in Massachusetts where any patient afflicted with syphilis—charity patient—can get free treatment. I have understood that Tewksbury is the only place where a patient is entitled to it, and then they only give one injection.

Mr. Davis: We give salvarsan free at the Boston Dispensary under these conditions: We charge for the ordinary injection $3.50. This is enough above the cost to give a surplus from those that can pay to meet the expense of giving a reasonable number of free treatments. Our rule has been for the last two years and a half, since we have been giving salvarsan, to refuse no patient who needs it. We have come out just about even during that period. That system was worked out at the Boston Dispensary quite carefully by Dr. Abner Post, and seems to us to be successful.

Dr. Nichols: In reference to the State Infirmary at Tewksbury, it was just suggested that one treatment, one injection, was given there. As a matter of fact, they all receive three treatments, and during the last three years 757 cases have been treated and 1,944 treatments have been given.

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A PRESSING PROBLEM.

WANTED: A CURE FOR TYPHOID BACILLUS CARRIERS.

A splendid bit of detective work conducted by Dr. M. L. Ogan, chief of the Epidemiologic Division of the Department of Health of New York City, has just disclosed the fact that an outbreak embracing twenty-five cases of typhoid fever in one of the hospitals in that city two months ago was due to infection from the kitchen at the hands of the well-known cook, "Typhoid Mary."

This carrier, originally discovered by Soper in 1907, has been associated with typhoid fever wherever she worked. For three years she was kept in the Health Department's isolation hospital, but was finally released on her promise not again to hire out as a cook and to use all precautions to prevent the occurrence of further infections.

Since the discovery of the prevalence of carriers and the important rôle they play in the transmission of infectious diseases, epidemiologists and sanitarians throughout the world have realized that they were facing one of the most important problems yet encountered and one of the most difficult.

The magnitude of the problem is apparent when we consider that even in a healthy city like New York, where nearly 3,000 cases of typhoid fever occur each year, this means the addition of over one hundred typhoid carriers annually. Allowing each carrier only twenty years of life, certainly a conservative estimate, it follows that there must now be over two thousand typhoid carriers at large in New York City. Until recently the city was also menaced by the carriers, over one hundred in number, present among the 200,000 persons handling its milk supply. This danger has, however, been removed by the compulsory pasteurization of all milk now sold in the city.

The fact that "Typhoid Mary" resumed work as a cook in the city, whose health authorities had exacted the promise from her to give up this occupation, shows how ineffective are the available methods of surveillance in the absence of the police systems prevailing in Germany and other European countries. It indicates that steps should at once be taken to provide for the establishment of some system of registration, bacteriological examination, and certification of persons engaged as cooks and kitchen help in public institutions, hotels, restaurants, etc. This, together with insistence on personal cleanliness, are about all that appear feasible at the present time. It has been suggested that careful inquiry be made concerning a typhoid fever history of every cook one is about to hire. We leave it to our readers to imagine how much reliance might be placed on any statements made under such circumstances.

It is clear that administrative efforts to control the spread of infections from typhoid bacillus carriers will be only partially successful so long as no reliable cure for the condition has been developed and to this end all efforts should now be directed. We earnestly commend the problem to our readers with the hope that it will soon be successfully overcome.

PROFESSOR SELSKAR M. GUNN,
Secretary, American Public Health Association.

My dear Professor Gunn: You, as secretary of the American Public Health Association, have had the goodness to communicate to me the resolution adopted at the Jacksonville meeting early in December last, which extends to me its regret at my withdrawal from active duties as president of the Superior Board of Health of Mexico, considers the responsible work attached to that position of the Mexican Republic and sends me all kinds of good wishes for my happiness and welfare. Also the recognition, so kindly expressed, of my humble efforts in the work of the Association and the Mexican Board of Health by electing me to honorary membership in the Association.

The appreciable manner in which the Association has acknowledged my services by conferring upon me such a high distinction and honor by electing me an honorary member has moved me profoundly, for I never thought my modest efforts in the grand work the Association has begun and continued on such a great scale, for the benefit and interest not only of the four nations in which it is formed, but also in all the inhabitants of the Western Hemisphere, and yet more for all humanity, would be rewarded by such distinction and for which I owe my lasting gratitude.

Mr. Secretary, through you I send my thanks and expressions of gratitude to the members of the Association for the high distinction that it has bestowed upon me and which I shall prize and honor throughout my life.

Wishing you all, health, happiness and prosperity, I am

Yours very truly,
E. LICEAGA.

THE CURSE OF NARCOTISM IN AMERICA—A REVEILLE

JEANNETTE MARKS,
South Hadley, Massachusetts.

(Author of "Leviathan," A Story of the American Drug Evil.)

Read before the General Sessions, American Public Health Association, Jacksonville, Fla., November 30-December 4, 1914.

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IT has been my opportunity to talk to many audiences about the evil of habit-forming drugs. The guests came to hear what was said in the spirit of those who listen to a lecture on a far country—a country infinitely remote geographically and equally remote in its problems. It became my duty to make it clear that the country they had come to hear about was our own country, our own state, our own town, our own church, our own doctor's office—indeed our own hearthstone.

But for the first time it is my privilege to talk with those to whom I need not explain how close this drug problem is—to talk with those who know far more in many ways than it will ever be possible for me to know.

Yet there is one way in which I stand an equal here among you all: In my longing to do what I can to help. Nobody can know better than I do that I am a mere bugler sounding a reveille, a soldier in the ranks where I have served now for some four years or more.

It may be that there is a second reason why what I have to say may prove useful: I am a woman. Was it not good old Chaucer who said in the *Tale of Melibæus* some six hundred years ago, "What is better than jasper?" "Gold." "What is better than gold?" "A good woman." "What is better than a good woman?" "No thing." But I think that any good woman in answer to that question "What is better than a good woman?" would reply, "A good man." Nevertheless, every woman is aware that in her nature, in her consciousness of the needs of the home, in her answer to the demands of life, she holds a gift for humanity that no man, however good, can give. Certainly it is true that both life and the work of the world are based upon the heart of a woman.

Because I want to help, because I have spent almost five years studying this problem, because I have seen this hydra-headed drug-curse drag its horrible length across the hearth of a home, and know what it can mean to a woman to fight battles for those she loves, to go down into hell for another, therefore I have courage to speak to you.

Did you know that if we were to take all the colleges, including all schools of medicine, engineering, and universities both for men and for women and should multiply their present student bodies by five, and then all the alumni, both men and women, and multiply them by five, that even

then we would fall short by a considerable fraction of one per cent. of the number of drug addicts in this country today?

Then do you know whether you have any drug victims in your family? Among your patients? In your church? In your community?

Did you know that there is practically no old American family of Civil War reputation which has not had its addicts?

Did you know that it was called "the army disease" because of its prevalence?

Did you know that with the war which now hangs over us, the drug evil will spring into a giantism of even more terrible growth than the present?

There were, at first 2,000,000 contestants in the Battle of the Aisne?

Did you know that there are something like 4,000,000 victims of opium and cocaine in this country today?

Then what loss does the curse of narcotism represent in our country? What is conservation going to do about this?

Did you know that there is no village, however small, in the United States today where you cannot get all you want of the camphorated tincture of opium in the form of paregoric or in various other forms in patent medicines?

Doesn't the druggist sell patent medicines? Don't these medicines depend wholly on habit-forming drugs and alcohol for their so-called "effect?"

Do you want to know what are some of the proprietary medicines my Investigator has found being sold in Springfield and elsewhere under the wing of the Massachusetts Drug Law? Maybe the druggist will say that this was "old stock." The important part is the law-breaking "old stock" is everywhere on sale.

(1) *M. F.*, 7 grains of opium per fluid ounce. (The law allows 2½ gr. of opium.)

(2) *M. H.*, 6 grains of morphia sulphate, 16% alcohol. (The law allows ⅓ gr. morphia.)

(3) *P.*, 1 1/9 gr. heroin, 17% alcohol, etc. (The law allows ¼ gr. heroin.)

(4) *H.*, heroin 1 1/10 gr., paregoric, 20 drops, alcohol 10%, etc. (The law allows ¼ gr. heroin.)

(5) *Dr. K's. New Remedy*, 7 grains of codeine, etc. (The law allows 1 gr. heroin.)

(6) *A. W. P. and T.*, morphine acetate 3.8 grains, chloroform, 17 minims. (The law allows ⅓ grain of morphine.)

(7) *B's. Consumption Cure*, 6 gr. opium per fluid ounce. (The law allows 2½ gr.)

(8) *W. P. and T.*, (manufactured by Scaife, in Springfield, Massachusetts) contains 1 gr. heroin. (The law allows ¼ gr.)

(9) *G's. S. of T.*, 1¼ gr. heroin, etc. (The law allows ¼ gr. heroin.)

(10) *W's. P. S.*, ½ gr. morphine. (The law allows ⅓ gr. morphine.)

(11) *Bs'. W. P. and T.* (manufactured in Springfield, Massachusetts), 3 gr. of opium. (The law allows 2½ gr.)

(12) *M's. Balsam*, 6 gr. opium. (The law allows 2½ gr.)

(13) *Terebene*, morphine diacetyl, 3 1/16 gr. (The law allows ⅓ gr.)

(14) *A. Headache Powders*, codeine, 3 1/17 gr. (The law allows 1 gr.)

(15) *P's. Cure*, 2 1/16 gr. heroin. (The law allows ¼ gr. of heroin.)

(16) *W. P. and C.*, morphine diacetyl, 1⅓ gr. (The law allows ⅓ gr.)

(17) *Dr. F's. Cough-Cold Cure*, morphine sulphate, 2⅓ gr. (The law allows ⅓ gr.)

(18) *C's. Comfort*, morphine sulphate, 1½ gr. (The law allows ⅓ gr.)

(19) *Dr. I's. Vegetable Pain Extractor*, alcohol, 95%; opium, 3 7/25 gr. (The law allows 2½ gr. opium.)*

Do you want more? Well, there are scores of them.

Do you want to know what a wind of words the Massachusetts Drug Laws are? Acts of 1906, 386, Amended by Acts of 1907, 259.

SECTION 6: "It shall be the duty of the state board of health to cause the prosecution of all persons violating the provisions of this act; but no prosecution shall be brought for the sale at retail or for the gift or exchange of any patent or proprietary medicine or food preparation containing any drug preparation the sale of which is prohibited or restricted as aforesaid, unless the said board has, prior to such sale, gift or exchange, *given public notice in such trade journals or newspapers as it may select that the gift, exchange or sale at retail of the said medicine or food preparation would be contrary to law.*" (Italics mine.)

Acts of 1910, 271.

"THE SALE OF MORPHINE AND OTHER NARCOTIC DRUGS.

It shall be unlawful for any person to sell, furnish, give away or deliver any opium, morphine, heroin, codeine, or preparations thereof, or any salt or compound of the said substances, except upon the written prescription or order of a lawfully authorized practitioner of medicine, dentistry or veterinary medicine, which prescription shall bear the name of the person giving it. But the provisions of this section shall not apply to any manufacturer, wholesale or retail druggist, nor to sales made to hospitals, colleges, scientific or public institutions; or to physicians, dentists, or veterinary surgeons; *nor to the sale of cough remedies and other domestic and proprietary medicines or preparations: PROVIDED, that such preparations are sold in good faith as medicines, and not for the purpose of evading the provisions of this act; and PROVIDED, that such preparations do not contain more than two and one-half grains of opium, or one third of a grain of morphine,*

* The author will provide any members of the A. P. H. A. on application with the titles in full of these proprietary medicines.

or one-fourth of a grain of heroin, or one grain of codeine or their salts in one fluid ounce." (Italics mine.)

Mr. Frank Chase, Secretary of the New England Watch and Ward Society, was behind the framing of these drug laws. He worked night and day at them. Mr. Chase knew, and he knows, what the ideal law would be. He is amply able to frame the very best laws a state or nation could have. In the Acts of 1914, Chapter 694, he has dragged the drug situation a little nearer the ideal, but the law still takes away habit-forming drugs with one hand only to give them back, full strength, in proprietary medicines with the other.

Then why hasn't Mr. Chase done more?

Did you know that the proprietary medicine interests in this country represent a little less that $300,000,000?

Samuel Hopkins Adams can tell you a good deal about the patent medicine interests in 1906 in his *Great American Fraud*, published by the American Medical Association.

Did you know that the United States spends annually about $100,000,000 on these ghoulish nostrums?

Did you know that practically two thirds of the revenue of every drug store comes from patent medicines?

That's why!

Do you want to listen to a few little pocket-nerve conversations with druggists interested in the sale of patent medicines taken down by my Investigator?

(a) At M's., in S., October 21, 1914.

Investigator (feigning depression): I'd like a tube of one-eighth grain morphia tablets.

Druggist: You can't have them; the law won't let me sell them, but there's a headache powder containing 140 grains of acetanilide to the ounce and two grains of opium.

Investigator: But if you can't sell me morphia how is it that you can sell me opium?

Druggist: Well, you see, opium compounded with other drugs in medicines is harmless—why, it wouldn't do you any more harm than a glass of milk!

(b) At L's., in Springfield, October 21, 1914.

Investigator (looking much exhausted): Can I get some morphia here?

Druggist: No, you can't.

Investigator: Well,—

Other Customer (who has just come in, interrupting Investigator): Like a bottle of "M's. H." please.

Druggist (taking it down and wrapping it up): Twenty-five cents.

Investigator (to druggist and surveying woman going out with "M's. H."): Is that a good medicine?

Druggist: None better.

Investigator: I'd like to see a bottle. (*She reads on label "6 grains of morphia sulphate per fluid ounce and 16% alcohol."*)

(c) Investigator Buying Cough Syrup For An Old Lady.

At M.'s Pharmacy, Springfield, October 21, 1914.

Investigator: Yes, she's old and she's had this cough a long time.

Druggist (sympathetically): Is it a dry cough?

Investigator: Yes, and persistent. She's tried all sorts of cough syrups such as "Cherry Pectoral." But today she asked me to find something new and *really* good.

Druggist (wisely): Does it bother her mostly at night?

Investigator: Yes, it bothers her at night and she can't sleep.

Druggist (distressed): Can't sleep. Has she a cold?

Investigator: No, it isn't a regular cold. It's only a cough.

Druggist: Well, here's just the thing, one of the best cough remedies ever sold: *S.-F.-T.* I know what this is.

Investigator (takes a bottle and reads) "Less than 1% alcohol," Hum, that's reassuring! (*Continues reading*) "Each fluid ounce contains about chloroform, 4 minims: Morph.Diacetyl Hydrochloride $^{3}/_{16}$ grains." Yes, indeed, this must be a good thing!

Druggist: Well, it is. I recommend it for all obstinate cases. And I take it myself whether I have a cold or not. (*To man just entering store.*) Doc. here, prescribes it for all his patients. It's put up specially for my trade, and I've ordered six more cases of it.

(d) At J. D. S's., in Springfield, October 23, 1914.

Investigator: Can I get a cough syrup here?

Druggist: Sure. Here's the best thing we have, "Terebene," put up specially for us.

Investigator (takes bottle and reads): Chloroform, 4 mins. Morphine diacetyl hydrochloride, $^{3}/_{16}$ grains. Yes, I can see it's good.

Druggist (proudly): *Very* good. Our best. Sell lots of it—27 bottles today. (*To clerk*) How much of this have we sold today?

Clerk (looks on record): Twenty-seven bottles.

(e) At T's., Springfield, October 23, 1914.

Investigator: Can I get a cough syrup here?

Sales Girl (who has been talking to an overdressed woman): Yes, "T's. S. of W. Pine and T."—our own make.

Investigator (reading label): "*Morphine sulphate*, $\frac{1}{2}$ grain."

Sales Girl (to over-dressed friend): It's great, isn't it, Clara?

Clara: I should say so! I give it to all the children for everything, and I couldn't get along without it myself.

Sales Girl (recommending "B's. Syrup of Codeine"): Did you ever try this, Clara?

Clara: No.

Sales Girl: Well, you ought to. I take it all the time, and it's dandy. It's fine to take at night because it makes you sleep so well.

(f) At R's., Springfield, October 23, 1914.

Investigator: I'd like some laudanum, please.

Clerk: Can't sell it.

Investigator: Can't sell laudanum! Why?

Clerk: Well, I don't know as I know. But I think it's a poison a lot of people have taken by mistake and been killed by it.

Isn't this about the whole story? The mistake may be ignorance or any one of a dozen causes, but is it ever anything but a mistake?*

Is there no legitimate use for narcotics? Yes, assuredly: the last stages of tuberculosis, hopeless carcinoma, sudden and terrible accident, the battlefield.

But do you think that narcotics in patent medicines don't matter? Have you read Dr. Kebler's Farmer's Bulletin 393 and also his *Present Status of Habit-Forming Drugs in America?*

Do you know Dr. T. D. Crother's *Danger from the Indiscriminate Use of Morphia?* Hear what Dr. Crother says about druggists and patent medicine manufacturers.

"A third class who are active in promoting narcomanias are druggists and manufacturers of patent medicines. The former soon discover the magic of prescribing doses of morphia for pain, and later teach the use of the needle, the druggist profiting by the sale of the drug. Many druggists change inebriates to morphinomaniacs by counter-prescribing some of the forms of opium. Physicians may start these cases, then the druggist helps on the addiction, and continues to sell the drug as long as the habitué can pay for it. The patent medicine proprietors use large quantities of opium, morphin and cocaine in the pain killers and nerve remedies. In one of these widely advertised drugs $\frac{1}{5}$ of a grain of morphia was found in every teaspoonful. Many of the brain and nerve remedies contain cocaine in addition to some form of opium. The popularity of such compounds often depends largely on the narcotics they contain. After their use a few months the druggist substitutes for them similar compounds containing morphin. The patient is then a narcomaniac. Not infrequently the

* Dr. Wiley in a letter to me, said, "I do not know of any greater threat to the people of this country than the drug habit of all kinds and the promiscuous and continued drugging of the community by patent medicines and nostrums of all descriptions."

history of the case begins with the use of proprietary medicines. The effect of morphia is then realized, though the drug is unknown. The physician is called in and he discovers morphinism in the abstinent symptoms when the proprietary drug is stopped. After an ineffectual struggle, he continues the morphia in some other drug, and from this on the course down is rapid. The patient drifts from one physician to another, each discovering the addiction and unable to help it, allows the patient to drift into other hands. Sometimes the case begins with the druggist, who prepares a mixture of morphin concealed in some flavoring substance, which is used for a time, then the patient drifts away to a physician and finally becomes confirmed in the use of morphine."

These pamphlets will tell you what patent medicines do to us and why they do it.

So much for the average druggist.

Now what about the physician?

Is the family physician addicted to the use of drugs? Is he a victim?

Did you know that the physician far exceeds in number every other class of addicts?

Do you know that if he is an addict he will be the first to prescribe a narcotic? Have you read Doctor Terry's report on *Habit-Forming Drugs in Jacksonville for 1913*? In a letter to me Doctor Terry places the percentage of addicts owing their addiction to the physician even higher. "I would place the percentage owing their habit to practising physicians at about seventy-five, and this even may be too low. Towns say ninety per cent., but he, on the other hand, draws patients from the well-to-do classes, and I believe that the average of our findings would come pretty close to representing the true state of affairs."

Do you know that college girls, the protected, the privileged, as well as working girls, purchase codeine tablets every few weeks at reputable druggists? Two Sal-Codia Tablets are to be had for five cents by working girls. Each tablet contains $^1/_{16}$ of a grain of codeine.

Did you know that there are reputable family physicians who put tubes of morphia tablets into girls' hands for monthly use?

Does the nurse girl dope the baby? Aren't there plenty of men and women here to whom when they were little things opium was given in the form of paregoric, Mrs. Winslow's Soothing Syrup, etc.?

Did you know it is the mother, often, uneducated by the doctor, and misled by the druggist, who, in her ignorance, starts the children in their dope-taking career? If we can't make out why a young man or woman doesn't make good in life, won't the cradle cry, perhaps, tell all we need to know of the incompetent, the pervert, the failure?

Do we always know what kinds of medicine are being given the children in our homes? In our town? In our community?

Are our children being taught on the street the use of habit-forming drugs?

Did you know that the respectable, if hum-drum, words, "school teacher" have acquired a new significance? That they mean those who teach children going to and from school the use of narcotic drugs?

Is there any mother, aunt, cousin, sister, father or brother who wants the children taught the use of cocaine and opium on the street?

Did you know that opium and cocaine are being sold in practically all our prisons? If we don't know it, Katherine Bement Davis does.

Did you know that the criminals in our prisons have discovered a way to make their own hypodermic syringes?

Do you know some of the ways by which the prisoners and officials smuggle various forms of opium into our prisons? I do, and some of them are not fit to repeat.

Hear what Frank Chase, the secretary of the Watch and Ward Society says: "The drug itself has crept into our penal institutions—we don't know how, but it has. Many men there have used the same hypodermic syringe, and the users of the drug have bought their supply apparently from other prisoners rather than from the officials. Penal institutions, in which we could do great things to cure the habit, have thus become one of the greatest sources of its spread." Dr. Hamilton Wright can tell you something about this on page 47 of Senate Document No. 377.

Is your grocer peddling dope? Ours is, and the Massachusetts State Laws can't touch him.

Can your night messenger get all the dope he wants and for any one he wants it for? Bring it to you or mail it you? When you go to Boston or New York, New Orleans or St. Louis, Kansas City, Atlanta or Richmond, Terre Haute, San Francisco or Cincinnati, Minneapolis, Utica or Detroit, Philadelphia or Chicago, it might be well to try the experiment. (Private reports in my possession made by the investigator of the National Child Labor Bureau and covering New York City, two on Utica, one on Georgia, one on Terre Haute, four on New Orleans.)

Is the post office sending dope through the mails?

Did you know that it is forbidden to use the mails for the transmission of habit-forming drugs? Does this apply to a cheerful concoction like *M's. H.*, containing 6 grains of morphine sulphate and 16% alcohol to the fluid ounce? This stuff which breaks the law eighteen times is to all intents and purposes exculpated by the law, for it is a proprietary medicine—it has the freedom of the postal service. Uncle Sam lets such things pass unchecked to form the little addicts of the nursery.

Did you know that the drug trade, held up in China, is unloading itself on the United States?

Do you know what opium did to the Chinese?

Do you know what opium and cocaine do to us as individuals?

Did you know that one month of morphine taking would make a drug victim out of almost anyone?

Did you know that a week of steady cocaine taking would make a criminal in impulse and probably in action of a man or woman?

Do you know what opium and cocaine will do to us as a nation?

Did China know?

What facts do we know about the 4,000,000 people in this country, more or less, who are addicted to the use of opium and cocaine?

Wouldn't you be interested to know whether ignorance or inheritance is the biggest manufacturer of degenerates?

Read *Farmer's Bulletin 393* by Doctor Kebler of the United States Bureau of Chemistry, or *Senate Document 377* by Dr. Hamilton Wright, or *Narcotic Drug Diseases* by Dr. George Pettey, or Doctor Kebler's *Present Status of Drug Addiction in the United States.* They can tell you!

Did you know that in the last forty years the amount of opium imported into the United States has more than doubled? Dr. Hamilton Wright knows.

That we, with a population of some 90,000,000 import over 400,000 pounds of opium per annum? Doctor Wright knows and tells us all about it in *Senate Document 377.*

Did you know that 90 per cent. of the opium imported is used for illegitimate purposes? Doctor Kebler is responsible for this figure. Read first paragraphs of his *Present Status of Drug Addiction.*

Did you know that as against a 351 per cent. increase in our importation of all forms of opium for the last five decades there has been but 133 per cent. increase in our total population? Doctor Wright knows. See page 42 of *Senate Document 377.*

Did you know that Italy, with a population of one-third ours, uses but 6,000 pounds of opium per annum? That Austria Hungary, with a population half ours in size uses but 3,000 pounds?

Do you realize that narcotism is a state of mind and body that requires two lids, one the alcohol lid and the other the opium and cocaine lid? What are we going to do about getting this second lid on to stay?

Did you know that *WE*, not China, are now the first opium-eating nation in the world today?

Then what are we going to do about the curse of narcotism in America?

ENFORCEMENT OF THE TENNESSEE ANTI-NARCOTICS LAW.

LUCIUS P. BROWN,
State Food and Drugs Commissioner of Tennessee.

Read before the General Sessions, American Public Health Association, Jacksonville, Florida, December, 1914.

THE Act of 1913, now in force in Tennessee governing the method of sale of certain narcotic drugs, and its method of enforcement, appears to have brought to light some rather interesting facts, hence this consideration of it is presented.

This act covers the compounds and derivatives of opium and of coca-leaves, and the central idea is the restriction of these drugs to their legitimate use in medicine. While following the general lines of the Act of Congress of December 17, 1914 (the so-called Harrison Act), governing the interstate traffic in such drugs, the Tennessee Law goes further than that act, and limits dispensing or distribution of the drugs to three classes, namely, to registered physicians, dentists or veterinary surgeons, in the course of professional practice only, to registered pharmacists in pursuance of prescriptions of physicians, dentists or veterinary surgeons, and to the sale or distribution by wholesale druggists, dealers or jobbers within the state, to retail dealers; provides that a register shall be kept of the purchases and sales, and has in addition, that provision of the old New York Cocaine Law, which provides for the dispensing of cocaine only in solution. With the dispensing physician it is more strict than the Harrison Act, and handles him more effectually. The State Food and Drug Inspector, in whose charge is placed the enforcement of the act, and the secretary of the State Board of Health, are made a board for the drawing up of regulations for the enforcement of the act, and it is in these regulations that the chief departure from the usual methods of enforcement of like legislation consists. That one of these regulations in which this departure chiefly consists is reproduced below in full. It provides for the refilling of prescriptions for use by persons at present addicted to the use of the drug, in order to minimize suffering among this unfortunate class, and to keep the traffic in the drug from getting into underground and hidden channels.

Since a very large proportion of the medical profession has either lost sight of the fact that the habitual use of an opiate produces a true disease, or never knew it, it is thought well to remind them of that fact. It will further be recalled that one of the first effects of an opiate is to lessen the secretions of all mucous surfaces of the body. This effect persists throughout the whole course of the addiction, no matter how long continued. Addicts are constantly constipated; and the use of a purgative by them is almost as regular as the use of their drug. The symptoms of abrupt

withdrawal of opiates from an addict, it will also be recalled, are as below, but these do not always occur in the order named. There is usually, in the beginning, a general malaise, with restlessness, precordial distress, irregular heart action, pains in the back and limbs, nausea, vomiting, diarrhœa, general exhaustion, with possible mania, and finally complete physical and mental collapse. The mania may, and not infrequently does, assume a suicidal form. The collapse occasionally ends in death, and is always accompanied by intense suffering, the details of which can be had by any interested person from any one of several different text-books.

It follows from this condition of affairs, that the sudden general stoppage of the sale of the drug except on prescription would certainly result in great suffering to the indigent class of addicts, possibly in many deaths, and certainly in driving the traffic into channels outside the law. It is therefore to be avoided if possible. It is further obvious that there is quite sufficient secrecy about this disease without forcing it to any greater degree of concealment. The only other alternative to such permit system as is provided for in the Tennessee Regulations, is state curative treatment for all indigent addicts, with permanent commitment of those incorrigible to institutions for the feeble-minded. It will at once be apparent after reading this paper, that such a proceeding is out of the question in most states, because of the enormous number of persons involved.

I want to call particular attention here to the fact that the habitual use of cocaine is not a disease, but a habit, inasmuch as it does not produce such toxemias as are consequent on the use of morphine; therefore its abrupt withdrawal results in no such untoward consequences as with the latter drug. No provision, therefore, need be made for the relief of persons addicted to it.

The regulation mentioned, is as follows:

REGULATION III.

Refilling Prescriptions.

No prescription coming under this law can be refilled except by permission of the secretary of the State Board of Health and the Pure Food and Drug Inspector. Said permission can only be given by a permit to be obtained from these officials under the following conditions, namely: The person desiring same must apply to said officials according to the following form and that only. Note that this form must be followed exactly, namely:

APPLICATION FOR PERMIT.

.....Tenn., ... 191..

DR. R. Q. LILLARD AND LUCIUS P. BROWN,
Nashville, Tenn.

Gentlemen:

I, ..., do hereby apply to you for permission to have refilled the accompanying prescription for an opium compound. I hand you herewith certificate of Dr. ..... that I require same, and that I have been a continuous user of said drug for ..... years. My druggist is ..... at .....

Very respectfully,

.....

(Applicant must not fill these blanks.)

Application Number..... Sex..... Color.....

Permit Granted..... How drug is taken { Needle / Mouth / Nose }

Date..... Cause of habit.....

Permit Number..... .....

The physician's certificate must be in the following form:

PHYSICIAN'S CERTIFICATE.

I, ..., a licensed doctor of medicine, in .....
PHYSICIAN SIGN HERE.

County, do hereby certify that ..... the applicant for permit to refill prescription which this affidavit accompanies, is personally known to me to be a regular user of an opium conpound and to have been such user thereof for the term of..... years. In my judgment, the opium compound called for by this prescription is absolutely necessary to said applicant for the maintenance of life and reason, or because of physical disability, as follows: .....

.....

The applicant is about ..... years of age and requires the equivalent of about..... grains of morphine per month.

I certify that all statements herein made are true and correct.

Witness my hand and seal this ..... day of ..... 191..

Signed.....M. D.

STATE OF TENNESSEE,

COUNTY OF.....

Personally appeared before me ....., a Notary Public (Justice of the Peace) in and for the County aforesaid.....M. D., who is personally known to me, and makes oath that the facts stated above are true.

.....

My commission expires.....

For the information of all persons concerned, the form of permit is given below; any paper purporting to be a permit and not in this form is spurious.

OFFICE OF PURE FOOD & DRUG INSPECTOR,
NASHVILLE, TENN.

PERMIT TO REFILL PRESCRIPTION CONTAINING A NARCOTIC.

.....Druggist,

.....

.....

You are hereby authorized to refill the accompanying prescription when duly stamped, sealed and countersigned by one of us, and when same is numbered to correspond to this permit. This prescription may be refilled as often as necessary, but the total amount of narcotic consumed must not exceed.....per month.

You are to copy this prescription, make note of the number of this permit, and immediately return both original prescription and this permit to this office for cancellation.

This permit is good until.....

Respectfully,
R. Q. LILLARD, M. D.
LUCIUS P. BROWN.

Permit Number.....
Date Granted.....

The person receiving the permit as above noted, must surrender same to the pharmacist who first fills the prescription. The pharmacist receiving it must retain said prescription, register it in a book provided for the purpose, making a copy of it, and return the original at once to the office of the Food and Drug Inspector for cancellation. A druggist receiving said prescription with permit for refilling, is expected to notify the Food and Drugs Department in case of improper use of the permit, and the death of the holder, of course, automatically revokes it. The Board for Rules and Regulations does not bind itself to give a permit to every person applying to it, but will give said permit only in its discretion. Any permit so given may be revoked by written notice to the dealer with whom it is filed.

No permit calling for the refilling of a prescription containing a compound or derivative of coca-leaves will be given.

This permit system, as will be noted, is as rigidly guarded as it is possible to make it through a physician's certificate. Although it has been abused in a few cases, its good results appear to far outweigh its defects. It has moreover resulted in giving a considerable mass of data which could not be procured in a reasonable time in any other way. An effort is made, at every renewal of a permit, to lessen the amount of the drug allowed. This results usually in improvement of the addict's condition. Before adopting the regulations, they were discussed at public hearings with representatives of all trades and professions interested, and are now heartily supported by every class.

After twelve months of operation, there were on January 1, 1915, registered under this system, 2,370 persons of all ages and colors.

Table I shows the proportions of male and female addicts, together with the proportions of the various drugs used. It will be noted that there are about twice as many women as men in the whole list. The proportion

TABLE I.

	Totals.		Morphine-users. (86% of whole number.)	Users tincture of opium. (7.25% of whole number.)	Gum opium-users. (5.06% of whole number.)	Heroin-users. (1.3% of whole number.)	Miscellaneous drugs (inc. codeine, glycoheroin, papiene, etc., 5 persons only).
	Number.	Percentage.					
Males . .	784	33.1	33.1	25.0	33.3	77.4	40
Females.	1,586	66.9	66.9	75.0	66.7	22.6	60
	2,370						

of the sexes in the use of morphine and gum opium is about the same as that shown by the users of all drugs. Women seem to be especially prone, however, to use laudanum; with heroin, on the other hand, the conditions are reversed. Inasmuch as this drug is used almost altogether for dissipation, it is probable only a small proportion of its users in the state are registered.

TABLE II.

	Morphine. Grs.	Tincture of opium. Ozs.	Gum opium. Ozs.	Heroin. Grs.
Males.....	8.86	.49	.31	4.66
Females.....	8.22	0.57	.2	4.66

Table II shows the dosage according to sex. It will be noted that ordinarily men seem to use more of the drugs than women, the only exception to this being laudanum, where the women have a little the advantage. With heroin, only seven women use it, and since one of these, from the red-light district, uses 750 grains per month, there is a strong suspicion that she is dividing with some friend; leaving her case out of consideration, the amount of heroin used by each man would be very much larger than that used by each woman.

TABLE III.

	Oldest.			Youngest.			Longest addiction.			Shortest addiction.			Averages.		
	Age.	Length of addiction.	Age began.	Age.	Length of addiction.	Age began.	Age.	Length of addiction.	Age began.	Age.	Length of addiction.	Age began.	Ages.	Length of addiction.	Age began.
Male...	85	20 yrs.	65	17	3 yrs.	14	72	50	22	50	2 mos.	50	49	11 yrs., 2 mos.	37 yrs., 10 mos.
Female..	90	8 "	82	22	3½ "	18½	55	50	5	69	1 "	69	49	11 yrs., 6 mos.	37 yrs., 6 mos.

Table III, giving some maxima and minima as to ages and lengths of addiction, together with some averages, is of considerable interest. As regards the oldest users, honors are fairly easy between the sexes. Among the youngest users, the males lead. This boy is a heroin addict who apparently contracted the disease by infection, just as the disease is usually contracted by its devotees. In the matter of age at which addiction began, as will be noticed under the head of the longest addiction, women appear to have the lead, but inasmuch as this patient has been taking the drug since she was five years old for a spinal trouble, her case is hardly a fair criterion. There were, however, two other women who have been using the drug for fifty years, and as will be noted, the longest addiction among men is of the same period. In the case of the column headed "Shortest Addiction," it is apparent that physicians are using the permit system to enable them to care for patients with an incurable disease.

The averages are the important portions of this table. They appear to be very much the same—with the women a little in the lead. Note that this further bears out the indications of Table IV, and that these figures and those of Table IV, appear not to bear out certain other observations showing that men begin the drug habit earlier.

TABLE IV.

Age-Periods.	Males.		Females.		Both sexes.		Proportions males to females at each age-period.	
	Per cent. in each period.	Excess over females, same age-period, in percentages.	Per cent. in each period.	Excess over males, same age-period, in percentages.	No. cases.	Per cent.	Males, per cent.	Females, per cent.
15 to 24.....	2.6	0.9	1.7		49	2.0	42.8	57.2
25 to 34.....	10.5		13.7	3.2	301	12.7	26.4	73.6
35 to 44.....	19.8		23.4	3.6	531	22.4	29.4	70.6
45 to 54.....	29.3	2.9	26.4		650	27.4	35.4	64.6
55 to 64.....	20.4	2.0	18.4		452	19.0	35.4	64.6
65 to 74.....	13.1	1.0	12.1		295	12.4	34.7	65.3
75 to 84.....	3.8	0.4	3.4		84	3.5	33.7	66.3
85 and over...	.1		.4	.3	8	.3	12.5	87.5

Table IV is possibly the most instructive of this series, showing as it does, the per cent. of each sex at different age-periods. Note in this the great preponderance of women from age 25 to age 44. In these two age-periods they form nearly three-fourths of the whole number of addicts,

and this preponderance appears to so far prevail into the next period that 63.5 per cent. of all females are from 25 to 55 years of age, as against only 59.6 per cent of all males. It will be at once apparent that the first twenty years of this period is about the age when the stresses of life begin to make themselves felt with women, and includes the beginning of the menopause period. It appears reasonable, therefore, to ascribe to this part of female life, no small portion of the addiction among women. Again it seems fairly safe to ascribe the slightly larger proportion of men in the first ten-year life-period to the fact that this is about the age when dissipations are commonly taken up, these being more distinctively a male attribute.

Table V shows the statement of the attending physician as to physical disabilities of addicts. This table necessarily is not an exact one. For instance, the names of the diseases given would hardly, as a whole, satisfy a registrar of vital statistics. They are, however, the best that can be done, and they are given for what they may be worth. They appear to possess a not inconsiderable degree of value. Certainly the fact that the physician reports, in over one fourth of all cases, that there is at present no physical disability, indicates that however the disease of narcotism may have been contracted, there is at present no physical disability calling for the use of a narcotic. Again, under the comprehensive title of "Female Troubles" is probably grouped a large volume of disability which accounts for a very considerable proportion of the narcotism among women. It makes up 9.3 per cent. of all cases listed, and 13.9 per cent. of all female cases. This table, however, being compiled largely for the purpose of instituting comparisons between the sexes, obviously does not show the figures for these so-called "Female Troubles."

Rheumatic pains, neurasthenic or neurotic conditions such as shown in the lines headed neuralgia, nervousness, etc., and disturbances of the digestive tract, are all characteristic withdrawal symptoms, and possibly no great weight should be attached to the figures given therefor. Nevertheless, it is to be noted that rheumatism appears more prevalent among men, as might be expected, on account of the greater exposure of men to weather conditions, while neurasthenic or neurotic conditions are more prevalent among women. Again, "Accident and Operation" as present causes, are greatest among men, and "Habit after Illness" among women. From the small proportion of the latter condition shown, namely 5.6 per cent. in both sexes, it is not to be inferred that only this number of cases is due primarily to that cause. Other investigations by me, as well as the experience of all other writers on this subject, would appear to indicate that well over 50 per cent. of existing cases of narcotic addiction are due to the indiscreet administration of drugs by physicians.

Venereal diseases appear to account for no inconsiderable proportion of the trouble, and are naturally greatest among men, tuberculosis being

greatest among women. It appears likewise, from these figures, that only 5.2 per cent. of permits were issued to incurables, including in this list tuberculous patients (the other incurables being cancer and like diseases); therefore, 90 to 95 per cent. of the persons using narcotics do so entirely unnecessarily.

TABLE V.

Name of complaint	Per cent. of both sexes exclusive of "female troubles."	Males.			Female (exclusive of female troubles).		
		Per cent.	Excess (E) or Defect (D) over column 1. (Both sexes) (in percentages).	Excess over females, (in percentages.)	Per cent.	Excess (E) or Defect (D) over column 1. (Both sexes) (in percentages).	Excess over males (in percentages).
Physician says "None"	26.7	24.4	D 2.3		27.8	E 1.1	3.4
Not stated in application	8.8	8.1	D. 0.7		8.9	E. .1	.8
Rheumatism	14.3	19.0	E. 4.7	7.8	11.2	D. 3.1	
Neuralgia	7.4	4.9	D. 2.5		8.8	E. 1.4	3.9
Habit after illness	5.6	4.5	D. 1.1		6.3	E. .7	1.8
Accident and operation	4.4	6.6	E. 2.2	3.4	3.2	D. 1.2	
"Nervousness"	4.1	2.5	D. 1.6		5.0	E. .9	2.5
Diarrhœa (including dysentery)	3.2	4.0	E. 0.8	1.3	2.7	D. .5	
Kidney and bladder troubles	3.1	1.9	D. 1.2		3.8	E. 0.7	1.9
Incurables	2.8	2.3	D. 0.5		3.0	E. 0.2	0.7
Asthma	2.8	3.6	E. 0.8	1.4	2.2	D. 0.6	
"Stomach trouble"	2.6	3.2	E. 0.6	0.6	2.3	D. 0.3	
Tuberculosis	2.4	1.5	D. 0.9		3.0	E. 0.6	1.5
"Bowel trouble"	2.1	2.0	E. 0.3		2.1	E. 0.0	0.1
Ulcers on limbs, etc.	1.3		D. 1.3		1.8	E. 0.5	1.8
"Heart trouble"	1.2	2.2	E. 1.0	1.6	.6	D. 0.6	
Venereal diseases	.9	1.5	E. 0.6	1.0	.5	D. 0.4	
"General bad health"	.8	.5	D. 0.3		1.0	D. 0.2	0.5
"Headache"	.7	.9	E. 0.2	0.3	.6	D. 0.1	
Miscellaneous	4.8	6.4	E. 1.6	1.2	5.2	E. 0.4	

As to the distribution of the disease between the two races, it is to be noted primarily that Tennessee possesses a considerable negro population—in the neighborhood of one fourth of the whole. Our data on the racial distribution are not very exact, because only in cases where a specific statement is made, can we be reliably informed as to the race of the applicant. Figures which we believe to be fairly exact indicate that not over 10 per cent. of our permit holders are colored. This is due in part to the

fact that the average negro avoids as far as possible any contact with an official, and to the fact that the negro appears to use relatively less morphine, and more cocaine, than the white man.

An interesting fact brought out by our records is the comparison between the different sections of Tennessee. East Tennessee is a mountainous, well-drained country with a salubrious and rather bracing climate. West Tennessee, on the other hand, lying between the Mississippi and Tennessee Rivers, is rather flat, of low elevation, with much marsh-land and therefore with a considerable proportion of malarial troubles. East Tennessee appears to have one addict in 1,359 of the population, while West Tennessee has one addict in only 928. Moreover, West Tennessee, largely a cotton-growing section, has relatively much the largest negro population in the whole state, which would further increase the proportion of addicts among the white population of this section. The fertile lowlands of the South are commonly credited with having an unusually large proportion of addicts, and these figures are in accord with that reputation.

As to what proportion of the total addicts of Tennessee are registered under this permissive system, guesses only can be given. It seems safe to say that not over one half of the addict population is registered—possibly not over one-fourth. Taking, however, the lower figure, it would appear that there are in the neighborhood of 5,000 addicts in Tennessee. The state has about 2.3 per cent. of the whole population of the United States. It is an agricultural state, and consequently, living conditions appear to be not so exhausting as in more thickly settled communities, nor life as a rule, so intense. In order to get the whole number in the United States, we may multiply our figure of 5,000 by 43. This gives us about 215,000 addicts. Probably, however, in order to allow for conditions in cities and industrial communities, we ought to add 25 per cent. to this number, giving not less than 269,000 addicts in the whole United States. In my opinion this is a very conservative calculation. It shows by no means so many as sensational writers appear to want us to believe, and while it thus shows better conditions it is bad enough. An opium addict even at work shows anywhere from zero efficiency up—hardly in any case showing 100 per cent. efficiency. In addition to this there is a large proportion of them that must be taken care of by friends and relatives or at community expense. The annual cost of the drugs actually used in Tennessee, calculated at retail prices, is about $145,000.00. On the basis just suggested for the population, this would make the annual expenditure for the drugs $15,597,500 for the whole United States. Ten per cent. of this may possibly be regarded as necessary. Deducting that, we should still have $14,038,000 as the amount expended by addicts simply to satisfy the addiction—a sheer waste of money, to say nothing of the damage to the community otherwise, which is appalling.

In a paper read before the American Public Health Association at the Denver meeting, Doctor Terry called attention to the public health aspect of drug addiction. This side of the matter cannot be too strongly emphasized. I have already attempted to give some idea of the extent of the infection and of its consequences. Contagion is undoubtedly a very frequent method of spread. I have met many instances in which more than one member of a family was infected, the first case, acquired accidentally or through a physician, infecting other members of the family largely through a certain tendency on the part of the addict, particularly in the early stages, to introduce others to the delights of the addiction. Certain physicians unhappily leave behind them a sad trail of addicts. In most instances these physicians are themselves addicts. In other cases, the physician may for some reason or other be particularly fond of the use of the drug, and ignorant or heedless of its consequences.

In this connection, the addiction to heroin (diacetyl morphin) is not to be lost sight of. This, as is well known, is a drug of recent introduction to the Pharmacopœia, and while it undoubtedly has considerable value, my observation has been that the damage which it does far outweighs its general good. Heroin addiction is spread almost altogether by infection. It has a very pronounced stimulant effect, and for that reason is largely used by boys and young men as a means of dissipation. It is for this purpose chiefly used by inhalation, a quill or joint of cane being inserted into the nostril, the other end of which is thrust in the powdered drug held in the palm of the left hand. The use may be begun for the relief of such minor troubles as headaches, fatigue, etc., especially by young people who work. In this instance, the tendency of the drug addict to admit others to his joys is very pronounced, with at times the additional incentive that the addict spreading the habit may act as a salesman of the product. The largest number of its users, aside from the inhabitants of the segregated districts, we have found to be youngsters from 15 to 25 years of age. Under present conditions, it is almost a certainty that, in large cities, in every place where a number of boys and young men are employed together there will be a certain amount of heroin addiction. Thus several cases have come to me where young men have stated that they had acquired the habit when employed as bell boys in hotels. It likewise seems to be a particularly difficult habit to cure, as might be expected from the character of its devotees, and the sale of this drug ought to be hedged about with just as rigid and drastic restrictions as are possible to enact into law.

I shall not undertake to point out in detail the dangers involved in the use of these narcotic drugs. The manifestations of the disease differ essentially from those of alcohol. The person under the influence of alcohol usually makes a nuisance of himself to everybody with whom he comes in contact because he is inclined to be boisterous, demonstrative and noisy.

The opium addict, on the other hand, appears to desire nothing so much as to take himself and his troubles to a secluded spot where he may seek such relief from his obsession as he can quietly secure. Shame at being fast in the slavery of a self-induced force from which he cannot escape probably plays no small part in this tendency. The drug addict is usually therefore more to be pitied than censured, and every effort should be made to help him attain a fulfilment of the desire, which is almost universally present, to get rid of the disease.

The United States is to be congratulated on the passage of the Harrison Act. While not by any means a perfect measure, it is an excellent piece of legislation as a whole, and will go far towards correcting the grosser manifestations of this menace to American civilization. But I think it will be readily perceived that if it is to accomplish the purpose for which it was designed some method will be necessary of caring for those persons who are already in the clutches of the drug. A very large proportion of them are nearly or quite paupers. Either state aid or, where state aid is not possible, whether for economic reasons or because of the general ignorance on the subject, some other method such as that adopted in Tennessee, will be necessary not only to prevent an amount of suffering which will in the aggregate be vast, but also a violating of the law which will tend in large part to nullify it.

In closing, I want to make a plea for an intelligent and scientific study of this subject. It is so new, and the mental position of the large majority of the medical profession toward it has been of such a nature, that it has not had from alienists and from men specializing in allied lines the attention to which its importance entitles it. It appears moreover to deserve the best thought of the medical profession generally, and in such work the physical aspect of the case should never be overlooked. The drug addict is a sick man both physically and mentally, and should be studied and treated as a sick man and not as one always wilfully delinquent.

THE INDEPENDENT ATTITUDE OF THE "DOPE USER"—AND WHAT ARE WE GOING TO DO ABOUT IT.

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Read before the General Sessions, American Public Health Association, Jacksonville, Fla., November 30–December 4, 1914.

DURING the last meeting of the International Opium Commission held in Shanghai, China, one of the delegates from China, Mr. Tang Kuo-an, an official of the Fifth Civil Rank, and a member of the Waiwupu, and the most able and scholarly delegate, sounded the keynote upon which the success of China's effort to stamp out the opium problem among its four hundred million of inhabitants was built when he declared in a speech: "What China needed most, was sympathy."

It is this very question of sympathy and the lack of sympathy around which our success or failure in dealing with the preventive phase of this dope problem hinges. We might as well face the fact squarely. There is little use for us to base our ideas upon the emotional stage, which finds its chief expression in merely agitation. We want to get down and deal with ascertained facts. It is only upon the basis of these ascertained facts that we are enabled to really reach certain conclusions of such a practical kind that we can definitely fix a responsibility and make our efforts prove helpful.

Within the makeup of every individual character there is a certain subtle and characteristic attitude of individual independence. Every one of us, for example, prefers to select in our way, and according to our own judgment, certain kinds of books we like to read, certain kinds of music we like to hear, and certain kinds of congenial companionship among our friends that we like to enjoy. We personally prefer to exercise our own prerogative as to what we shall and shall not do so long as our actions do not interfere with our neighbors. When, however, any action of ours based upon our own individual and independent wilfulness proves self-destructive or of injury to the body politic we term society as a whole, there is a relationship of responsibility which devolves upon organized society to take command of the wilfully intemperate individual and to pilot him upon his course.

"If a man or woman choose to go to the dogs it is his or her own lookout so long as their actions do not drag anybody else down with them" we reason, but as the ascertained facts of this most practical world have revealed to us that dope users who deliberately hit the toboggan *drag others down with them*, because of their wilful and diseasedly independent spirit, it becomes necessary that we devise some method of action of a practical character to combat this waywardness. Because, therefore, the dope user wilfully and diseasedly exercises his own individual faculty

of independence and chooses to ruin his faculties and those about him, it becomes highly vital that we, living in his community where this is one of our local problems step into the breach and take a personal hand in the fray.

Some years ago, out of a simple kindly feeling toward the man, I permitted a certain gentleman of high birth and standing to occupy a place in our household as a personal guest for several months. I had no suspicion at the time that this guest possessed any abnormal desires nor had lost all his ordinary powers of resistance. One day I noticed an unusual nervous tremor about our guest and my suspicions became aroused. One evening late, after we had all retired, I had occasion to arise from bed and go down to my back office. In bath robe and slippers, the trip downstairs and through the house corridor to the office was made most quietly, when to my amazement I noticed a light in the office and my personal guest just about to help himself to some drugs which he had discovered on a convenient and very accessible shelf. Caught in the act "with the goods" as the saying is, and in spite of all his chagrin and annoyance, my guest nevertheless attempted to deliberately lie and excuse his presence in my back office at such an unearthly time.

Why did he do this? Why did he attempt to make me believe he was not a dope fiend and was not in search of his favorite drug? It was merely because this man still thought there might be a possibility of protecting his good name, or at least whatever was left of his former good name. Let me quote another instance of a horse jockey that would deliberately call upon me, confessing frankly that he was a cocaine fiend, and that all he asked was for a good heavy "sniff" of the powder. Here we have an instance of the dope user who possesses an independence of a different type, and but recently a patient consulted me for help, stating that his wife was a morphine user and had been consuming eight grains a day; that she wished to stop, but could not reduce her dosage below this amount without feeling a great need for support. Upon my investigating the case, I found that instead of the patient being the man's wife, he himself was the victim. What little independence he still possessed was being utilized in his effort to shield himself as much as possible from the disgrace with which he knew he was being regarded.

We are dealing with a condition of reality, and not a theory. So long as a dope user who has become a habitué, or is growing into the stage of an habitué, can procure his favorite drug, he or she is going to do so whether he must lie, beg, borrow or steal to attain his end. The quicker we recognize this fact, the better. It has its basis upon supreme and primitive instincts of independence and we must acknowledge it in our efforts to find a solution for the relief of these people as individuals and for the betterment of our local community life known as society. We can pass legislation restricting the importation of opium, and regulate by national law

the manufacture as well as the sale of all habit-forming drugs. We may likewise in each of our states pass legislation most radical and specifically explicit as to the sale of habit-forming drugs. We can even proceed still farther and narrow down our efforts to solve this problem of the habit-forming drug fiend into a local, or municipal, or city problem. This, in my judgment, is where it fundamentally depends for its final solution. Each one of our American citizens might follow the wonderful example of Jacksonville, Florida, who, under the leadership of its Health Officer, C. E. Terry, led the campaign to secure the city ordinance making suitable provisions for the treatment of the Jacksonville dope users. In my judgment, Doctor Terry's plan is the best that has yet been advanced. The Jacksonville method is based upon actual, efficient, personal contact of the physician with the dope user. This contact is not merely from the standpoint of the scientist, but is also from the standpoint of the simple human-hearted fellow American who has true sympathies for the underdog. Of course, we all realize why the underdog has reached his or her present position, but the fact remains that we must deal with him upon a basis of plain humanity. Speaking from the standpoint of a physician we are not going to have the complete solution in the eradication of this habit-forming drug problem come entirely from the ranks of the medical profession. We cannot have it come as a wave of reform from the ranks of the druggist. Neither can we have a lot of legislation work out as an absolute solution. Certainly we are not going to find the channel of cure for the drug habit in our police circles. Heroin, cocaine, morphine are poisons to the human system exactly as is whiskey, wine, beer and other alcoholics. And we must, in my judgment, get down to the solution of this problem along the lines similar to the plan of Doctor Terry in his Jacksonville, Florida, city ordinance plan of procedure. (Oftentimes it may be that a certain individual dope user may need strenuous measures applied much as did the young wife who administered treatment to her husband the first time he came home deadly drunk. The wife and a friend of hers wrapped her drunken husband in a sheet, then the wife took a strong stick and applied it strenuously much as does a school-teacher apply it to the back of the bad boy. The beating soon sobered the husband, since which time he has not only never returned home drunk, but he absolutely stopped short in the use of all alcoholics from that time on.) This method, of course, would not apply indiscriminately to every class of dope users, but there are certain instances where it would prove to be the most valuable kind of medicine. Certainly, strenuous measures are absolutely necessary. Sympathy, however, intelligent, kindly sympathy is equally necessary. Let each city, through its health officer, try to work out its problem on this basis, and until a better plan is suggested, I know of none so practical as that embodied in its city ordinance and in use at present, right here in Jacksonville, Florida.

PUERPERAL SEPTICÆMIA.

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Read before the Section of Vital Statistics, American Public Health Association, Jacksonville, Fla., November 30-December 4, 1914.

Definition.

PUERPERAL septicæmia may be defined as an infectious disease attacking females within a few days after the delivery of the product of human conception, irrespective of the period of uterogestation.

Etiology.

All cases of puerperal septicæmia are the result of microörganisms gaining entrance into the genital tract either from the hands of physician, nurse or other attendant, from instruments, dressings, washes or from within the body originating at a point distant from the genital organs as in septic sore throat, typhoid fever and other infectious diseases. The most common bacteria capable of infection are the streptococci, the staphylococci, gonococci and colon bacilli.

History.

The honor and glory of discovery of the cause of puerperal septicæmia have been claimed for two widely known physicians, Oliver Wendell Holmes of Boston, Mass., and Semmelweiss of Vienna. In April, 1843, Holmes published in the *New England Quarterly Journal of Medicine and Surgery* his celebrated essay on the Contagiousness of Puerperal Fever, and in it his object is laid down in the following words, "The object of this essay is to prove that puerperal fever is sometimes carried from patient to patient by medical assistants." He gives credit to a Doctor Gordon of Aberdeen, who in the year 1795 wrote an article in which he stated that, "This disease seized such women only that were delivered or visited by a practitioner or by a nurse who had previously attended patients affected with the same disease. I arrived at that certainty in the matter that I could venture to foretell what women would be affected with the disease upon hearing by what midwife they were to be delivered or by what nurse they were to be attended." Dr. T. C. Albutt of England states that a Doctor Walsh published an essay similar to Gordon's ten years before that of the latter.

On the other hand, the adherents of Semmelweiss claim that he was impressed with the same idea about the same time as Holmes, but while the latter contented himself with the publishing of his essay, the former made the subject his life work; it is probably true that Semmelweiss's statement that the cause of this disease was due to the carrying of decomposed animal matter by the examining finger, the operating hand and the obstetrical instruments, met with the derision of the head of almost

every chair of obstetrics in Europe, and that to him in greater measure than Holmes is due the honor of determining the etiology of puerperal fever.

Prevalence.

Puerperal septicæmia is found wherever human pregnancy and its results occur. In England and Wales in the decennium 1891-1900 there were 46,591 deaths from childbirth and puerperal septicæmia, 20,813 being credited to the latter. In the city of New York during the past ten years there were 2,630 deaths reported from this cause to which may be added 383 deaths from criminal abortion, nearly all of these latter being due to septicæmia.

Notification.

Puerperal septicæmia is infectious, but many countries, states and cities do not require notification thereof. It is not included among the notifiable diseases in the Model State Law for Morbidity Reports, as adopted by the Eleventh Annual Conference of State Health authorities with the Public Health Service, held at Minneapolis in June 1913. The Sanitary Code of the Department of Health of the City of New York contains a provision for the reporting of this disease to the health authorities and provides a punishment for noncompliance therewith, but the pressure of the enforcement of more important sanitary measures has resulted until the last year or so in the neglect of its enforcement.

Case Fatality.

In Semmelweiss's report in the *Zeitschrift der Kaiserlichen Königlichen Gesellschaft der Aertze zu Wien* in December 1847 and April 1848 are found statements that in the period 1838-1846 there were 25,000 cases credited to physicians with a mortality of 9 per 100, while among 21,904 cases credited to midwives the mortality was 4 per 100.

In Manchester, England, in 1906 there were 103 cases with a mortality of 29 per cent. It is rather difficult to obtain a true case fatality, except from hospital statistics wherein it is probably higher than in clinical experience outside an institution, as the severe cases are generally sent to the institution, the milder cases being treated at home.

The death-rate from this cause is generally based on one thousand births reported, that based on the one thousand women at all ages being unsatisfactory and likely in some instances to give fallacious results. The best method is to base the rate upon the deaths of puerperal women at various age groups per one thousand births to mothers at the same age groups, but ordinarily these latter figures are not available.

The following table gives the mortality of some large cities of the world based on one thousand births reported.

DEATH-RATE FROM PUERPERAL SEPTICÆMIA, PER 1,000 BIRTHS REPORTED DURING QUINQUENNIAL PERIODS 1880–1884 AND 1905–1909.

Cities.	Rate Per 1,000 Births. 1880–1884.	1905–1909.	Decrease Per Cent.
Bremen	3.1	0.5	84
Berlin	3.2	3.5	9*
Dresden	3.4	2.8	18
Budapest	3.7	2.0	46
Paris	4.3	3.5	19
London	2.5	1.4	44
Liverpool	0.5	1.0	100*
Edinburgh	2.7	1.5	44
Milan	1.6	2.0	25*
Amsterdam	2.5	0.6	76
Stockholm	4.9	1.0	80
Moscow	5.3	1.5	72
St. Petersburg	2.0	1.2	40
Vienna	4.7	3.1	34
New York	...	2.1	....

It is gratifying to note that nearly all the cities mentioned show a much decreased mortality, the exceptions being Berlin, Milan, and Liverpool. The highest mortality prevailed in Paris and Berlin, the lowest in Bremen. The figures for the quinquennium 1880–1884 are not available for New York, as the basis—the registration of births—is quite incomplete for that period, but there undoubtedly has been a considerable decrease, as shown by the fact that in the quinquennium 1871–1875 there were 866 deaths reported from puerperal fever against 1,381 deaths in 1909–1913, the deaths having increased almost 60 per cent., the total population 400 per cent.

It is noteworthy that the cities showing a rate above 3 per 1,000 births are those that possess a worldwide reputation as to gaiety and moral laxity.

In England and Wales in 1912 there were 1,216 deaths from puerperal fever, these figures do not include 119 deaths from abortion which were probably septic deaths. In the registration area of the United States 3,905 deaths were reported in 1912 from this cause, so that we are justified in saying that 6,200 women died from this cause in the whole United States in that year.

The rôle played by the medical or other attendant in the causation of this disease has created quite a deal of comment; the first conclusion jumped at is that the midwife by reason of her untidy appearance and her general reputation for slovenliness is the most important factor in this infection, but repeated attempts to prove that the physician is innocent of complicity in the death have met with distinct failures. Twenty years ago

* Increase.

Doctor Tracy, the then Registrar of the Department of Health of the City of New York, compared the deaths of one hundred females from this cause with the certificates of birth on file and found that 50 per cent. of the births were reported by physicians. More recently a personal investigation of 50 deaths from this cause by one of the brightest social workers showed that 25 of the deaths were attended from the commencement of labor by physicians. Out of 105 cases of puerperal sepsis reported during the first nine months of this year, 20 cases were at some time attended by midwives, 67 were treated by physicians or in hospitals, 1 by a nurse and information as to medical attendance could not be ascertained in 17 cases.

Viewed from the standpoint of birthplace of mother and reduced to comparable figures by taking into consideration the percentage of all births reported during the year according to nativity of mother it was found that Irish mothers gave the highest mortality (153), Austro-Hungarian (130), Russian (105), German (100), American (84), and Italian (81) mothers in order named.

Viewed from the point of month of pregnancy, 66 out of the 105, or 63 per cent. reached full term, 9 reached the seventh and eight month, 7 reached the fifth and sixth month, and 23 reached various periods less than the fifth month. Viewed from the point of surgical interference in 58 cases no instruments were used, information was not obtainable in 21 cases, in 10 cases forceps were used, craniotomies were performed in 3 cases, 5 cases were curetted, three pairs of twins were born, 2 cases of ectopic gestation occurred and one had the placenta removed by manual use.

In recent years there is no doubt that the preaching of antiseptic and aseptic precautions has had its effect in reducing the mortality from this cause, but much remains to be done. When we consider that the life of a mother is of the highest value to the community irrespective of the angle of view, then all attendants at confinements should be made to realize the responsibilities imposed upon them as to the prevention of infection in the accouchement. This can only be done first by compulsory notification; the attendant at confinement must be made to realize that the failure to report cases will be followed by legal procedure to punish the offender. There is no professional man as timid as the physician in appearing in court as a defendant, and I know whereof I speak.

The second step should be educational in character; the expectant mother should be advised as to the necessity of cleanliness; proper food, air and sleep should be obtained in order that the body may be able to offer resistance if infection does take place. The physician and the midwife need allopathic doses of cautionary literature on the subject of asepsis at the bedside of a mother to be.

The third step should be official supervision similar to that in use in cases of the better known infectious diseases.

THE PREVENTION OF ODORS AT CITY REFUSE DISPOSAL WORKS.

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Read before the Sanitary Engineering Section, American Public Health Association, Jacksonville, Fla., November 30–December 4, 1914.

THE disposal of city refuse, unless conducted in a proper manner, is apt to cause conditions under which offensive smells or odors are created and maintained. It may be interesting to examine into this fact more closely than has been done heretofore, with the hope that some helpful conclusions may be reached and improved ways and means found to prevent these nuisances.

It may be well first to consider some pertinent fundamental data. Investigations made regarding the sensation of smell, from the highly developed scent of a dog down to our own olfactory nerves, when they are entirely benumbed by a continuous excitation in a room filled with odorous vapors, have thrown some light on the relative physiological facts. From many observations, measurements and studies we can gather some results that are useful for our purpose.

The perception of an odor is caused in man by the stimulation of a small area of mucous membrane or epithelium, less than the size of a cent, near the upper end of the nasal duct. We have the best grounds for believing that the normal excitation of this area is caused by the impingement of molecules of matter, diffused either in solid, colloidal, liquid or gaseous form and not, as has sometimes been suggested, by wave-like vibrations similar to those causing the sensation of sound.

Tyndall proved that air, after it had been in contact with odorous substances and had taken up their vapors, absorbed heat much more readily than did pure air. He found that vapor of the oil of roses absorbed 36 times more heat than pure air. Tigerstedt found that the specific gravity of natural odorous vapors was sufficiently high to cause a distinct measureable retardation in their diffusion. He found also that different vapors have different rates of diffusion, and that odorous vapors attached themselves and are condensed by adsorption at the surfaces of glass, paper, cotton, water, skin and clothing, etc.

Odorous molecules, on the other hand, detach themselves from the surfaces of odorous solids and liquids by simple evaporation, by oxidation and hydrolytic decomposition.

Currents of air will carry vapors, as they carry dust, along with them to quite a distance.

Some scientists have maintained that only gases, and not liquids, were capable of stimulating the olfactories. Others, however, like Johannes P.

Müller, have apparently demonstrated that liquids having odorous matter in solutions did produce odors, such as the solutions of the sulphates of sodium and magnesium. Müller found that some fishes, particularly sharks, have a well-developed sense of smell.

It is well known that we can perceive odors much more readily when the air is moist than when it is dry. It is also known that the mucous membrane in the nasal duct must be moist in order that an odor is perceived. We cannot smell when it is dry nor when the nostrils are completely filled with any liquid, even Eau de Cologne.

Passy made some valuable determinations as to the least amounts of odorous matter that can be perceived by us. He has given figures per liter of air in which the following quantities of certain substances are dissolved and can be perceived:

Camphor	0.005 mg.
Ether	0.004 to 0.0005 mg.
Sulphureted hydrogen	0.0005 mg.
Essence of orange	0.0001 to 0.00005 mg.
Mercaptan	0.00000004 mg.

The great relative intensity of odor that is produced by mercaptan is hereby indicated. No determinations which apply more specifically to city refuse seem to be available.

Different olfactory nerves correspond to the perception of different kinds of odors. Some persons are incapable of perceiving certain odors, as vanilla, violets, certain faintly burning vegetable matters, etc.

All olfactory nerves tire of some odors more or less soon, and after a certain time, fail to respond. While in this condition they can at once perceive the sudden appearance of other odors. For instance, Aronson found that persons having become insensible to the odor of iodine from continuous use, found their perception of the odor of ether at once perfect.

It is also known, if we may add another interesting physiological case, given by Nagel, that two or more entirely different odors may cause a composite odor not resembling any one of the original odors. Nagel also found that some odors compensate each other more or less. For instance, 4 grams of iodoform are made almost inodorous by 200 milligrams of Peru balsam. The cause is not a chemical one, because the same result is found when the two substances are separately introduced into the two nostrils, as reported by Zwaardemaker. The odor of paraffine introduced into one nostril will neutralize the odor of rubber, when introduced into the other, in a certain proportion.

City refuse when delivered at the disposal plant may cause, in its raw state, offensive odors, chiefly after the beginning of the putrefaction of some of its parts. The odors to be discussed in this paper relate only to those which are associated with the final disposal of refuse. They can be

suppressed at once by subjecting the refuse on arrival to a proper treatment by any of the well-established methods.

The different parts of a city's refuse are enumerated as follows: Garbage, dead animals, night soil, stable manure, street sweepings, ashes and rubbish.

All of these parts can be treated and finally disposed of by incineration. Garbage and dead animals can be treated by their reduction to grease and fertilizer. Or, garbage, dead animals, night soil and manure, can be buried as a final disposition. Manure, street sweepings, ashes and rubbish can sometimes be satisfactorily disposed of by dumping, and fresh garbage as food for pigs.

The odors which may arise in connection with these various methods of treatment may be classed in two groups.

First.—Odors from the escape of pure gases which are soon converted into other gases that are not offensive. For instance, sulphureted hydrogen persists in an offensive condition so long as it is concentrated or not decomposed, but when diluted in a sufficient quantity of air it is altered into other and inoffensive compounds.

The general remedy for eliminating such odors, therefore, is either the discharge of the gases into an air current sufficiently great to get a quick dispersion and dilution, or the passage through a medium which produces a chemical destruction by fire, or through a disinfecting chamber, or by a dispersion into and a dilution by a sufficiently ample current of water. A disappearance of odorous gases by dilution in the atmosphere is generally quite rapid.

Second.—Odors from vapors, which are the forms of substances which normally exist either as gases or liquids, and which, in the case of an incinerator, are frequently accompanied by extremely minute particles of solid matter or dust. For instance, we may refer to the odors from the vapors and dust particles which arise from a chimney and persist until they can be sufficiently diluted and the odor from them has become unnoticeable. Their disappearance by decomposition in the atmosphere, if it takes place at all, is extremely slow.

The remedy is substantially as above, namely, a quick discharge and dispersion in a sufficiently large air current, if in an open country, or a passage through fire or through a disinfecting air chamber, or by dispersion and dilution in a sufficiently large current of water.

For the prevention of odors it is of first importance that all solids or liquids causing them are collected as quickly and as thoroughly as is financially practicable. It is further important that the odorous gases or vapors are removed by natural or artificial ventilation, with the aid of furnace heat, blowers or air jets, or by a discharge into the atmosphere in a manner to effect a thorough dispersion sufficient and dilution.

Ordinary ventilation does not remove the vapors which are held at solid

surfaces by adsorption. A jet of compressed air frequently played against the interior surfaces of the buildings and against the clothing of attendants, will remove this source of odor. Odorous solids and liquids, from which the molecules carrying the odor are detached and rise up into the air, should not be long exposed about the works.

Special care should be taken, when the atmosphere is moist and warm, to suppress the odors about the works, because under this condition our olfactories are most sensitive to odors.

The tiring of the sensation of smell when continually active, forms some excuse for neglecting to keep the plants wholly inoffensive. It would be well, therefore, to establish reasonable rules, so as to control the suppression of odors and to enforce the rules even if men about the plants do not feel the necessity therefor.

It is most convenient now to discuss the odors as they relate to each of the above enumerated parts of a city's refuse, and in doing this I shall adopt the reverse order which was given above.

1. *Feeding* garbage to pigs should be prohibited unless the garbage is delivered fairly fresh and without offensive odors. No decomposition sufficient to produce putrefaction of any part of the garbage should be allowed to have taken place. Slight odors of kitchen waste, such as we perceive at the collection can, are neither injurious nor objectionable, nor can there be objection to the odors of the first decomposition perceived when parts of the garbage have turned sour. Unless fed before putrefaction has begun garbage should be disposed of in other ways.

2. *Dumping.* In order to discuss odors arising from the dumping of stable manure, street sweepings and ashes, we should discriminate between the several parts.

Stable manure, if put on fields and utilized or dumped on vacant grounds, may cause the familiar odor which according to the locality may or may not be objectionable. In the former case dumping should not be continued and old manure dumps should be completely covered with a few inches of ashes or earth.

Street sweepings, if dumped on vacant ground, should also be treated in this manner, although the odors are generally not objectionable.

Ashes do not have offensive odors, but cause objection only from the dust which is raised by dumping and by winds.

3. *Burial* of garbage, dead animals, night soil and manure, is an efficient method of at once preventing all offensive odors. It is the oldest and most common method used for disposing of all such organic waste matter which cannot be more profitably treated in other ways.

4. *Reduction* of garbage and dead animals is practised in many large cities of our country. Of all the treatments this one has produced the most objectionable odors, although it is neither difficult nor very expensive to prevent them.

These objectionable odors are due partly to the delivered garbage when it is temporarily stored at the plant until treated, partly to the fumes produced during the treatment, partly to the exposed tankage and partly to the exposed liquids discharged from the digesters and grease separating tanks.

To prevent the creation and maintenance of these objectionable odors, the works should first be kept scrupulously clean. The operation should then be so arranged that the freshly delivered garbage can be placed into the digesters within a very short time and best at once, and not be exposed in the open until it gets foul.

The gases and vapors arising in an ascending air current from the digesters, as well as from the presses, naphtha tanks, and wherever odors from the cooked garbage may be generated, should be caught in hoods closely placed, of sufficient size and proper shape, and discharging into pipes of diameters properly proportioned to carry away the respective amounts of odorous air ascending from each hood. The draft into the hoods and the circulation in the pipes is best effected by a blower of ample capacity.

The odorous air thus collected from all places where it is formed should be delivered at the best place for treatment. This place is generally below the grates of the furnaces connected with the operation of the works, where it can be passed through the fires by forced draft and be thoroughly purified by intense heat. If the quantity of this air is too great for serving the regular furnaces, an additional special furnace may be built to cremate the excess in quantity, as the complete destruction of the causes of this offensive odor is important. Or, the objectionable air may be discharged into the rear pass of the boilers which may sufficiently eliminate the odors. Practically all of the objections that have been made to the installation of garbage reduction works has been caused by the foul odors frequently emanating from them.

Another method of purifying this odorous air is by passing it through a disinfecting chamber, which method, however, is generally less efficient and more costly.

A noticeable improvement is often gained by making use of a compressed air jet to occasionally aërate the interior walls of the building in which garbage reduction is effected and the surfaces of all apparatus within the same and even the clothing of the attendants, which has been known to retain the odor for hours.

The foul liquids from such plants should at once be discharged into and carried away by a sewer pipe and disposed of as sewage.

5. *Incineration* can dispose of all classes of city refuse without exception. It is a method by which all classes when thoroughly mixed can have the odors of all parts completely destroyed which may otherwise create a nuisance.

To accomplish this end, it is necessary to incinerate the refuse at a high temperature, nominally at least 1250° F., so as to guarantee the sufficient combustion of all organic matter and thereby to remove all sources of odor. Burning at a low temperature is apt to leave some of the organic matter only partly destroyed, and in this incompletely destroyed condition some of it emits a strong pungent odor.

To guarantee the prevention of a nuisance from refuse incinerators it is, therefore, necessary to have high temperature furnaces, which allow of the escape from the stack of chiefly carbon dioxide, if the combustion is complete, and monoxide if it is less so, but sufficient to prevent offense.

When the combustion is perfect there is no visible discharge from the stack. When smoke is seen to escape, it furnishes evidence that unburnt matter may also be discharged. Most of this matter will be organic, because of its lightness, and it is probable that it will have an offensive odor which can be perceived where the fumes strike the ground or a window. This fact has caused frequent complaints to be lodged from inhabited houses to which these fumes had drifted. Minute and even invisible particles of solid and partly burnt organic matter are not quickly dissolved and decomposed in the air, as is the case with gases. They drift and may travel a long distance as invisible clouds.

A pungent burnt garbage odor was recognized by myself on one occasion at a distance of over a mile from the stack discharging objectionable smoke, with a very faint wind blowing from the stack to the point of observation.

In order to successfully incinerate refuse in high temperature furnaces, so that no odorous smoke will escape, it is necessary to use forced draft and to carefully and intelligently regulate the fires and drafts so that the combustion is at all times perfect.

To prevent odors about the plant, no garbage should be stored longer than a day before it is incinerated, although an offense from mixed refuse does not arise as soon as from garbage alone as generally delivered at a reduction plant. It is further generally wise to arrange hoods and ventilating pipes in the furnace building to receive and carry the air, which may have become somewhat foul from contact with the refuse, to below the furnace grates and used with forced draft, so that the intense heat of the fire will thoroughly purify it.

As at reduction works it is advisable to keep incinerating works scrupulously clean. No refuse should be left scattered about. Dust from the final clinker and ashes should be properly controlled, and the floors of the buildings should be swept or washed daily. The walls of the buildings, the tools, clothing, etc., should be given, as often as found desirable, a blast from nozzles supplied with compressed air.

Attention to the above mentioned facts and to the conclusions drawn therefrom may prevent all offensive odors at refuse works, whichever of the best methods of disposal may be employed.

EDUCATIONAL WORK IN SANITARY FOOD VALUES IN NEW YORK CITY.

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Read before the General Sessions, American Public Health Association, Jacksonville, Fla., November 30-December 4, 1914.

THE necessity for rational educational work in connection with the so-called "pure food campaign" has been only too apparent. A knowledge of the facts regarding pure food would have made more easily possible the establishment of reasonable standards and would have prevented the unfortunate confusion of economic factors with factors of real health significance.

In any event the emphasis from now on in food work is likely to be of a slightly different character for in contrast to the past few years we are now expanding into a campaign for *clean* food. In the clean food campaign there are several things to be realized at the start:

1. Clean food as a factor in the prevention of disease transmission is of immensely greater importance than is "pure food."

2. The necessity for well founded educational work is equally if not more apparent than in the pure food campaign.

3. In clean food work there are two big elements from the point of view of justification that are worthy of separate emphasis, namely, the sanitary on the one hand and the economic on the other. We must realize further that another subdivision is necessary in the sanitary field for we must recognize here, as in all health work, the frequently different demands of decency and of health.

4. In clean food again there are several points of attack beginning with food production and including the transportation, the storage, the wholesale handling and finally, the retail distribution of food. Obviously education and control is needed everywhere. It is probably true that in the questions of transportation and storage the economy factor is of decidedly greater importance than is the health factor. This may be true also in the field of retail distribution but the difference is less for here more than anywhere else in the food world must serious consideration be given to the sanitation of food handling.

5. It is in the field of retail distribution that the greatest amount of popular educative work is needed. It is here also that the greatest number can be reached. In this field the educational work comes, so to speak, closest home.

6. There are then, in clean food work, two main classes to be reached, namely, the housekeeper and the small retail food distributor.

In most communities educational work has been carried on for a long time, both intensive and extensive in character, by many private organizations such as the Consumer's Leagues, the Woman's Municipal Leagues, the Housewives' Leagues, etc. This work has been very admirably conducted and a great deal has been accomplished especially so far as the control of the home and the purchaser is concerned. It may be said that until recently almost all of the popular educational work in many cities along health lines has been carried on by outside unofficial agencies. In food work, for instance, many Health Departments until recently, have been satisfied with a series of not especially instructive visits to the food shops, followed by prosecutions and fines, and it was not a great while ago that a prominent Health Department official boasted of the fact that twelve million pounds of food had been destroyed in one year by the Department inspectors.

Recently, however, things have taken a decided turn for the better, a constructive educational point of view has been adopted, a strenuous effort is being made by preventive measures to eliminate this tremendous waste of food, and in fact, fortunately for city food supplies the departments of health are inculcating in their food work an increasing amount of prophylactic educational endeavor.

During the winter of 1913–1914, the Bureau of Food Supply of the New York Association for Improving the Condition of the Poor selected an East Side district in Manhattan Borough stretching from 59th to 79th Streets and from Third Avenue east to the river, and made in that section an intensive study of all types of food shops—butcher, bakery, grocer, delicatessen, fish market, push cart, candy store, restaurant, etc.—in order to discover accurately the conditions prevailing regarding equipment and food, the knowledge of food handling and of the food law possessed by the small shop men, the number and kind of violations and practical methods of preventing the same, the efficacy of the municipal inspection system and the relative value of intelligent educational methods, etc.

This study was carried on in closest coöperation with the Department of Health, a special inspector from the Department accompanying the investigator from the Bureau of Food Supply. Violations were reported to the Health Department, and instructions given regarding the cheapest and safest methods of obeying the law and the sanitary and economic reasons for doing so. Second and third visits were frequently necessary to determine the effect of the instructive method.

The study showed in the first place a decided willingness on the part of the small storekeeper to clean up his shop if he were only told how and why. The conclusions of the investigation were of course presented to the Department and somewhat on a basis of the data and experience thus acquired an attempt has been made to discover the most effective methods of placing

the most useful knowledge regarding clean food into the hands of the greatest number of people. The Department of Health through its Bureau of Publicity and Education and its Bureau of Food Inspection has taken the lead in this matter. While this type of educational work has really just begun it is felt that a fairly good start has been made and it may be worth while to outline briefly a few of the educational methods adopted.

A. A Clean Food Exhibit.

Section 46 of the Sanitary Code reads as follows:

"No food, except fruits and vegetables that are peeled, pared or cooked before consumption shall be kept, sold or offered for sale or be displayed or transported unless protected from dust, dirt, flies or other contamination. The term 'food' as herein used shall include every article of food and every beverage used by man, and all confectionery."

This, of course, applies to push carts, candy stands, grocery stores, fish markets, and all other retail food distributing centres. As most of these small dealers are by no means prosperous it was thought worth while to demonstrate to them not only the approved methods, from a sanitary standpoint, of covering and screening foods and of protecting them from dust, dirt, flies and handling, but also the cheapest satisfactory way. Consequently an exhibit was prepared and set up in the Health Department building consisting of a model push cart, a proper case for the display of sliced fruits, bakery and grocery show cases, berry boxes, street candy baskets, sanitary pickle jars, etc. It is planned to bring to the exhibit from time to time through the medium of the Retail Dealers Associations, groups of food distributors and it is hoped that the exhibit may be moved about from place to place. Undoubtedly such an educational demonstration will prove to be worth a great deal more than the previous system of prosecutions and fines and food condemnations.

B. An Itinerant Push Cart.

In food distribution in New York City the push cart is an exceedingly important factor, consequently there is a vital necessity for economic and sanitary control over this medium. In the Borough of Manhattan, President Marks has proceeded to establish the push cart on a sounder sanitary basis through the creation of push cart districts, special push cart streets, etc., and from the sanitary side some control is had over the push cart man himself through the system of licensing. Obviously the most urgent necessity was that of controlling and protecting the food itself and for carrying on educational work in this field a properly though cheaply constructed and equipped model push cart was prepared. This was supplied with fruit, candies, etc., and was pushed about the streets bearing a

sign which showed that the cart was one which met the approval of the Department and was the type which the Department in the future would require. All of it, properly ventilated, was covered with glass and made perfectly fly-proof, boxes being attached for carrying wrapping material and for receiving waste, etc. This supplemented the push cart on exhibition at the Department of Health and greatly assisted the Department in raising, by intelligent methods, the standard of push cart food control.

C. An Educational Food Leaflet.

Such a leaflet was prepared and was distributed by the Health Department visitors, the Bureau of Food Supply investigators, private philanthropic associations, settlements, neighborhood associations, etc. An effort was made to get the leaflet, accompanied by an intelligent explana-

tion, into the hands of each storekeeper. The leaflet was illustrated by contrast pictures and emphasized the following points of view:

1. What the Health Department requires of the shopkeeper.
2. What foods the Sanitary Code applies to.
3. The cheap and safe ways of meeting these requirements.
4. The health reasons for cleaning up.
5. The decency reasons for cleaning up.
6. The economic reasons for cleaning up.
7. What the small dealer should expect from the Department of Health.
8. An invitation to visit the Department of Health clean food exhibit.

D. The Use of the Regular Department Bulletins.

The weekly bulletin of the Department, having a circulation of 10,000 and going to all physicians and many private associations, etc. was supplied with a short, direct, concise paragraph on a particular phase of the food question. An attempt was made to reach the retailer through this special class of consumers while the material was presented in a popular form so as to obtain through the use of it by the press from the bulletin proof as wide a popular distribution as possible. Typical of these special food inserts are the following:

Clean Food and Decency.

Dirty food is food covered with *dust*, food to which *flies* have carried dirt and disease germs and food that everyone with *hands unwashed*, is permitted to handle.

You may get disease—typhoid fever and tuberculosis—this way, but even if you escape that, do you want to eat fruit covered with a fine dusting of horse manure, or meat upon which flies, probably from a nearby garbage pail have feasted?

Decency is worth while and does not cost very much—you can get it, too, in your shops, if you help the Department of Health to enforce the law regarding the screening and covering of foods by suggesting to your dealer that he *clean up*.

Dirty Food and Disease.

When cooking in your home, when buying in the shops, remember the serious results that may follow the interaction of the "five dangerous F's"

Filth
Food
Fingers
Flies
Fever

In the disunion of these forces there is health and strength for the consumer.

Insist that your butcher and your grocer overthrow in his shop, by screening and protecting his foods as required by law, the reigning dynasty of the "five deadly D's"

Dirt
Dinner
Disease
Diarrhea
Death

Other than these joint activities the Bureau of Food Supply itself has taken advantage of a great opportunity for educational work in connection with the food supply store which is operated in the previously mentioned East Side district. This is a plant established primarily as a distributing center for the food which goes to the families under the care of the Family Welfare Department of the Association. While some educational work has been carried on in this connection it is planned in a short while to increase this considerably. In connection with this food store it will be possible to make effective educational influences the more important of which may be briefly outlined as follows:

1. The store itself will be maintained as a model plant from the economic and sanitary points of view of food protection and will thus serve as a demonstration to the neighborhood.

2. Educational material may be distributed from time to time to the people who shall be served by the store as consumers.

3. An educational system may eventually be provided in which instruction may be given to the food consumers, mothers, school children, etc., on the economic, sanitary, dietary and culinary phases of food preparation and handling.

4. As the Bureau of Food Supply is particularly familiar with the defects and needs of the East Side district in the center of which the present food store now exists, every effort is being made to follow up in that district the effects of the previously described investigation and campaign.

It is planned in the future, either independently, or in coöperation with the Department of Health to publish and distribute a series of leaflets on such subjects as "The Pure Food Law," "The Sanitary Code and Clean Food," "A Clean Food Store Pays," "The Why and How of Clean Milk Distributing," etc.

The Bureau of Food Supply recognizes also the necessity of a more practical interpretation of food values on a basis of our present knowledge of dietetics. In order that this knowledge may be made available for the average consumer and housekeeper a study is being made at the present time in coöperation with the Department of Chemistry of Columbia University, the purpose of which is to ascertain whether a modernized dietary standard can be translated into a simple food budget, the use of which will not require scientific training, nor technical knowledge of food values.

It is realized that the most effective place to lay the foundation for rational food values is in the minds of the children. Consequently, the Bureau of Food Supply in coöperation with the Department of Education has organized a series of lectures for this winter which are being given to the elementary and high school pupils and which emphasize not only the sanitary and economic features of food control but give practical in-

structions in dietetics and the culinary art. Practical demonstrations regarding the dietary and caloric features of the food question are being given by means of model meal exhibits in connection with several lunch services in industrial and business institutions and a plan for similar educational work has been presented to the Department of Health for use in its proposed lunch room and in the new Municipal Building lunch service. The Department of Social Welfare through another of its Bureaus, namely, the Bureau of Welfare of School Children, has seized another good opportunity for educating the school children by tying up with the school lunch service which this Bureau now operates in 28 elementary and high schools a system of practical instruction not only regarding the use of food in cooking but the proper methods of making food purchases in the stores, etc.

All of us must realize that if health appropriations for this type of work are to increase, the people must be intelligently informed of the true, comparative values of these health measures. In health work, in clean food work as everywhere else, education is the essential prerequisite to sound judgment concerning relative health values.

Book Review.

The Nervous System and its Conservation. *By Percy Golthwaite Stiles. Philadelphia and London, W. B. Saunders Co., 1914. Pp. 229. $1.25*

This most interesting and clearly written volume is an attempt to apply the fundamental facts of the anatomy and physiology of the nervous system to the explanation of many events of daily life, thereby bringing out more clearly the physiologic basis of the hygiene of the nervous system. The writer has been for many years a teacher of personal hygiene as well as of physiology and the reader readily sees that he has studied each of these sciences with the other constantly in mind. The book he has given us is therefore most useful both to students of physiology and to students of personal hygiene. Every year sees the facts of physiology brought into closer relation with the experiences of daily life and it is most helpful to the student of the science, even to the student of the elements of the science, to read a book like this which is constantly pointing out the applications of physiology; no less helpful is it to the student of personal hygiene to have emphasized the physiologic basis of the solution of his problems.

The book is interesting and suggestive to all students of the subject; it will find its greatest usefulness among those who are not specialists in physiology, neurology, or psychiatry, but whose work must reckon more or less with each of these sciences. The general practitioner will be abundantly rewarded by finding new points of view; students of education need just the clear comprehension of the facts presented which they will obtain from its perusal. Finally it is a book for the general reader; no one need fear getting lost in the maze of nerve terminology or from the constant employment of concepts familiar only to the specialist. Language could not be simpler nor exposition more lucid. It is interesting and entertaining at the same time that it is soundly scientific in its point of view; and not the least of its merits is that it does not "dictate in a dogmatic spirit" but rather opens "important matters to fuller discussion."

Theodore Hough,
University of Virginia.

NOTES ON THE PRACTICAL APPLICATION OF THE "SALTPETER METHOD" FOR DETERMINING THE STRENGTH OF SEWAGES.

ARTHUR LEDERER,
Chemist and Bacteriologist, The Sanitary District of Chicago.

Read before the Laboratory Section, American Public Health Association, Jacksonville, Fla., December, 1914.

Since the publication of the saltpeter method of determining the biochemical oxygen demand of sewages and polluted waters* I have made a number of observations which throw more light on the reliability and practicability of the method. I have also simplified the procedure so as to make it more adaptable to working conditions. At the present time the operation of the sewage testing stations of the Sanitary District is entirely controlled by this method. It has also been employed in sanitary surveys of polluted streams.

The method is based upon the biochemical consumption of saltpeter oxygen by a sewage during an incubation period of ten days at 20° C. The initial minus the residual available oxygen expressed as parts per million oxygen indicates the biochemical oxygen demand. The original procedure consisted in the addition of varying quantities of saltpeter to the sewage in stoppered bottles, either with or without the addition of methylene blue. If no coloring matter was present, the "septization" of the sediment served as the index of the oxidation. The residual nitrite-nitrate oxygen was determined in the bottle in which the sediment did not turn septic after ten days' incubation. This method of employing varying quantities of saltpeter is necessary of course in preliminary tests when one deals with a sewage of unknown strength. There is, however, no additional labor involved, since only one bottle is selected for the final analysis. The other bottles are discarded. Once the approximate maximum strength of a certain sewage is established, a definite excess of saltpeter can be employed, thus reducing the number of bottles to one. I have found on various occasions that a reasonable excess of saltpeter does not result in an increased oxygen consumption. In this respect the method is vastly superior to all of the methods involving fresh water dilutions, such as required in the Modified English Incubation Test, accepted as a provisional procedure for the "Standard Methods of Water Analysis." It is true that in any dilution method, only free oxygen determinations are required which are much simpler than nitrate-nitrite determinations, from the analytical standpoint. However, the precautions and amount of preliminary work required in a dilution test such as the English Incubation

* Lederer, J. Infect. Dis., Vol. 14, p. 482.

Test* are great and emphasize the difficulties of obtaining comparable results with such a test.

In order to have comparable results with the English Incubation Test, it is absolutely essential to prepare a dilution which is just sufficient to insure stability. The saltpeter method was originally developed on this basis. Various dilutions were made of the sewage with fresh water and methylene blue was added as an indicator. The dilution, just sufficient to retain the color, expressed in parts per million of oxygen, gave the same result as when an equivalent of saltpeter of oxygen was added to the undiluted sewage. The saltpeter solution was prepared on the basis of five oxygen atoms being released from two sodium nitrate molecules. It is obviously wrong to prepare *ad libitum* any kind of sewage-water mixture and compare the free-oxygen consumption thus obtained with the saltpeter-oxygen consumption. Matters are still worse if a dilution is incubated at one temperature and the saltpeter sewage at another. An intelligent comparison can only be drawn by adhering to the procedure indicated above. That a serious error can occur in comparing the free-oxygen consumption with the saltpeter-oxygen consumption, if the proper required concentration is not adhered to, was impressed on me during the coöperative work on the Modified English Incubation Test. In a number of the series of experiments I worked out the saltpeter-oxygen consumptions, as well as the free-oxygen consumptions in the various concentrations. Such a comparison is recorded in the following Table I, the results being expressed in parts per million.

The figures in parenthesis indicate the percentage of oxygen absorbed by the sewage after ten days' incubation. The influence of concentration upon oxygen absorption is strikingly illustrated in the table. However, when the per cent. of oxygen absorbed by the sewage approaches 50 or thereabouts the two absorption figures do not differ very greatly, making allowance for unavoidable working errors in either method.

One difficulty encountered by the sub-committee on the determination of the biochemical oxygen demand of the laboratory section of the American Public Health Association was the fluctuation of the oxygen content during the incubation of a sewage-water mixture from one day to the other. Such fluctuations have been noted by nearly all of the co-workers, and account for the unreliability of the method. The reasons for these irregularities has not been satisfactorily explained, but it is probably that the re-aëration through loose stoppers is only a minor factor. Nevertheless, mixtures in which the free-oxygen is measured after incubation must be guarded from contact with the air. Re-aëration constitutes an almost negligible source of error in the saltpeter method. A number of experiments have been

* Lederer, J. Ind. Eng. Chem., Vol 6, Nov., 1914.

TABLE I.

FREE-OXYGEN CONSUMPTIONS IN VARIOUS CONCENTRATIONS COMPARED TO SALTPETER-OXYGEN CONSUMPTIONS AT 20° C.

Serial number.	Time of incubation in days.	Fresh water oxygen demand, P. P. M.							Saltpeter oxygen demand P. P. M.
		Original concentration of sewage in per cent.							
		1.0	1.5	2.0	2.5	3.0	4.0	5.0	
1	1	60	27			20			38
	5	180	113			97			71
	10	230	146			120			81
		(26)	(26)			(43)			
2	1	50	33			33			18
	5	130	100			67			57
	10	180	126			90			81
		(20)	(22)			(31)			
3	1	20		15			20		19
	5	150		90			75		78
	10	190		135			92		86
		(22)		(32)			(44)		
4	1	50		40			32		—
	5	140		95			75		63
	10	210		135			98		80
		(24)		(31)			(45)		
5	1	50			32			22	32
	5	110			84			66	66
	10	120			92			88	75
		(14)			(27)			(53)	
6	1	30			24			22	30
	5	100			68			64	60
	10	140			100			—	71
		(16)			(30)				
7	1	70			32			32	24
	5	150			96			60	52
	10	180			104			76	66
		(20)			(30)			(45)	
8	1	50			28			26	23
	5	130			96			80	66
	10	150			116			98	78
		(17)			(34)			(58)	
9	1	70			36			36	27
	5	190			112			100	67
	10	240			124			108	89
		(28)			(36)			(65)	

carried on incubating sewages with various stoppers, one seal,* and without a stopper at 20° C. and 37° C. The results are recorded in the following Table II:

TABLE II.

INFLUENCE OF EXPOSURE TO AIR UPON THE RESULTS OBTAINED BY THE SALTPETER METHOD.

Serial number.	Bio-chemical oxygen demand, P. P. M.									
	Incubation at 20° C.					Incubation at 37° C.				
	Number of days.	Glass stopper.	Cork stopper.	Bunsen seal.	Open bottle.	Number of days.	Glass stopper.	Cork stopper.	Bunsen seal.	Open bottle.
1	9	94	94	94	85	5	94	96	93	86
2						5	121	118	115	97
3	11	192	194	191	185	4	166	160	163	147
4	11	178	179	177	168	4	140	140	140	123
5	11	190	192	191	185	4	168	170	170	160
6	12	790	816	787	777	6	782	753	753	620

This table shows clearly that the precautions against re-aëration in the saltpeter method need by no means be rigid. A seal is not required, in spite of the appreciable quantity of gas accumulating beneath the stopper during incubation. Any kind of a stopper will do, even though the incubation be carried on at 37° C.

I wish to correct a statement made in the original article concerning the amount of free-ammonia formed during the nitrate reduction process. A number of observers, cited in the original article, assumed on the basis of experimental data that no free-ammonia is formed. Since this point has no actual bearing upon the availability of the oxygen present, it was not reinvestigated by me at that time. Mr. C. B. Hoover of Columbus, Ohio, found that free-ammonia is formed (not published), and this has since been substantiated by me in a number of experiments. Table III will show the results obtained.

The increase of free-ammonia appears appreciable.

Since the absorption of oxygen from the air in the saltpeter method seemed to be a negligible factor, it appeared likely that no error was introduced by incubating a large number of samples collected at frequent intervals and by mixing these individual samples after incubation. This would

* Bachmann, J. Ind. Eng. Chem., Vol. 6, Sept., 1914, p. 764.

TABLE III.

FORMATION OF FREE-AMMONIA DURING SALTPETER-OXYGEN CONSUMPTION.

Serial No.	Temperature of incubation, deg. C.	Time of incubation in days.	Free-ammonia in P. P. M. as N.	
			Before incubation.	After incubation.
1	37	3	7.2	9.2
2	37	3	8.8	12.4
3	37	3	12.4	14.4
4	20	5	7.2	10.0
5	20	5	8.8	11.6
6	20	5	12.4	12.8
7	37	3	10.8	15.2
8	37	3	14.0	16.4
9	37	3	12.0	14.8
10	20	5	10.8	15.2
11	20	5	14.0	18.0
12	20	5	12.0	17.6

furnish a much better control of a sewage disposal plant, giving more precise information on the actual strength of a sewage or tank effluent than other available methods. The solution of this question hinged on whether, in mixing the samples, the nitrites would be oxidized, thus resulting in lower oxygen demand figures. A large number of samples were, therefore, incubated with saltpeter. At the end of the incubation period the bottles were opened and air passed through the liquid for ten minutes. Such a procedure would at once spoil any result based upon free oxygen consumptions. As a matter of fact, it did not alter the result of the saltpeter method at all. The quantities of free-ammonia, nitrites and nitrates were unchanged by the aëration. Composites, therefore, can be made from samples taken at frequent intervals. Large quantities of sewage may be collected in jugs or bottles, containing a sufficient excess of saltpeter, and the oxygen demand may be determined. The larger the size and number of samples, the closer the true figures can be obtained.

The next question of interest concerns the correctness of figures obtained by incubating at 37° C., instead of 20° C. While doubtless it is inconvenient to wait ten days for a result in the operation of a plant or in any particular investigation, it is often advisable to sacrifice accuracy to convenience, providing comparable figures can be obtained. The conclusions to be drawn from the following table should not be generalized. Each operator or laboratory should obtain his or its own temperature relation. It is

probable that the relation in different places will not vary greatly with domestic sewages. When working with an unknown sewage or trade-waste, accurate figures can only be obtained by incubating at 20° C. for ten days, this consumption representing between 90 and 100 per cent. of the total. The following Table IV will show the relation obtained by me:

TABLE IV.

SALTPETER OXYGEN DEMAND OF SEWAGES AT 20° C. AND 37° C.

Serial No.	37° C.		20° C.		Serial No.	37° C.		20° C.	
	Incubation in days.	Oxygen demand P. P. M.	Incubation in days.	Oxygen demand P. P. M.		Incubation in days.	Oxygen demand P. P. M.	Incubation in days.	Oxygen demand P. P. M.
1	5	180	10	198	17	6	130	10	126
2	5	124	10	133	18	6	129	10	107
3	5	162	10	171	19	6	102	10	102
4	5	165	10	178	20	6	174	10	156
5	5	184	10	191	21	6	142	10	138
6	5	190	10	198	22	6	128	10	102
7	5	107	10	107	23	6	247	10	241
8	5	150	10	165	24	6	127	10	132
9	5	190	10	198	25	6	148	10	158
10	5	190	10	188	26	6	244	10	246
11	5	176	10	185	27	6	157	10	148
12	5	112	10	125	28	6	189	10	180
13	5	149	10	160	29	6	134	10	132
14	5	189	10	191	30	6	79	10	81
15	5	134	10	142	31	6	120	10	122
16	5	156	10	167	32	6	177	10	170
Average		160		168			152		146

According to this table, no appreciable error is introduced by incubating the samples for five or six days at 37° C. instead of 10 days at 20° C. The figures for the five- and six-day incubations are both within 5 per cent. of the 20° C. figures. A maximum of 5 per cent. has been found to be the approximate working error of the method. After the fifth day of incubation at 37° C., the absorption of oxygen is very slight. I, therefore, resort to five-day incubations at 37° C. for rapid work with my particular sewage. The cut can be made shorter by ascertaining a rough relation between the first day and tenth day incubation figure. Personally, I do not advise such a short incubation period, on account of a possibility of serious error. In eight tests which I made, the one-day incubation at 20°

C. was approximately 33 per cent. of the ten-day figure. The figures fluctuated between 22 and 43 per cent., showing the inaccuracies of an extremely short incubation period. Very often it is highly desirable to obtain information on the twenty-four-hour and ten-day oxygen absorption as well, where this relation gives a clue to the deoxygenating quality of a sewage during the first stretch after discharge into a river.

The nitrate reduction does not seem to be influenced by the artificial addition of many common bacterial species ordinarily found in water and sewage. This was found true with B. fluorescens liquefaciens, B. acidi lactici, B. megatherium, B. subtilis, Str. pyogenes, B. enteritidis, B. lactis aerogenes, B. coli, B. cloaceae, B. vulgatus, and B. prodigiosus.

A word of caution is required to prevent the indiscriminate application of the method to tradewastes. All of the original observations have been made on domestic sewage and polluted river waters. The enormous variation in the character of tradewastes makes it impossible to recommend the method unqualifiedly without preliminary tests. My experience with the application of this method to tradewastes relates, so far, only to slaughtering housewaste, on which it is working very satisfactorily. A tradewaste should be alkaline and should contain bacteria, or this method is not applicable. An acid tradewaste or too alkaline a waste should not be taken without adjusting the reaction to a slightly alkaline. If sterile, the contents should be contaiminated artificially with sewage. Even this may not prove sufficient.

The residual nitrate-nitrite should be carefully determined to avoid the liability to error in making readings, due to the large dilutions required for the colorimetric determinations. The error in reading ought not exceed 5 per cent.

Lately I have carried on some work on the method discussed in this paper, employing, however, a sodium nitrite instead of sodium nitrate solution. The quantities employed are calculated, of course, on the availability of oxygen, five oxygen atoms being available from two saltpeter molecules and three oxygen atoms from two sodium nitrite molecules. The intention was to eliminate one determination at the end of the incubation, since only nitrites would have to be determined and not nitrates as well. A considerable number of results seems to indicate that an equivalent of sodium nitrite will give results such as are obtained by using saltpeter, but I withhold a definite opinion until I have investigated further.

The method in its present form should be applied as follows:

For Sewages: The initial available oxygen can ordinarily be disregarded, since it is very small compared with the total biochemical oxygen demand. The maximum oxygen consumption, once established by preliminary tests, may serve as a guide for future tests on that particular sewage. A solution of 26.56 grams of sodium nitrate, c.p., per liter should

be employed. One c.c. of this solution in 250 c.c. sewage represents 50 p.p.m. of oxygen. The strength of the saltpeter solution may be varied to suit conditions. Incubate the sewage containing the saltpeter for ten days at 20° C. If 37° C. incubation is chosen, determine the relation of this incubation to that of 20° C. A seal is not required during the incubations. Composites may be made at the end of the incubation from samples taken at close time intervals. The appearance of a black sediment and the development of a putrid odor during incubation indicates that too little saltpeter oxygen has been added. Methylene blue may be added at the start to serve as an indicator during the incubations with saltpeter. Decolorization indicates the absence of sufficient oxygen. Domestic sewage usually varies in its oxygen demand from 100 to 300 p.p.m. At the end of the incubation determine the residual nitrite and nitrates, the latter by the aluminum reduction method. In order to convert the nitrogen into oxygen equivalents, multiply the nitrite nitrogen by 1.7 and the nitrate oxygen by 2.9. The initial available oxygen minus the residual oxygen gives the biochemical oxygen demand, which should be expressed in p.p.m.

For Tradewastes: Employ the same procedure with larger quantities of saltpeter. The reaction should be slightly alkaline. Acid reaction should be adjusted with sodium bicarbonate, and a too strong alkaline reaction with a weak hydrochloric acid solution. If the liquid is sterile, inoculate it with sewage, after adjusting the reaction. When working with a new waste, obtain checks with the dilution method.

For filter effluents and polluted river waters, this method can be supplanted by obtaining Phelps "relative stabilities" (Methylene Blue Method), provided colloidal matter is absent. The initial available oxygen must be determined analytically. It is best to make up a stock solution of 1,0624 grams of sodium nitrate c.p. to one liter of distilled water. One c.c. of this solution in 250 c.c. liquid represents 2 p.p.m. of oxygen. Unless the river water is badly polluted it is hardly required to add more than 10 p.p.m. of saltpeter oxygen. If the methylene blue is absorbed by the colloidal matter of river waters, correct "relative stabilities" cannot be obtained. Filter effluents are ordinarily sufficiently devoid of colloidal matter, and there is no trouble in obtaining correct "relative stabilities" by the simple addition of methylene blue, followed by incubation at 20° C. for ten or twenty days. In waters carrying clay and other colloidal suspensions, the determination of correct "relative stabilities" necessitates the incubation of two samples, one to determine the residual free oxygen, the other to determine the residual nitrite-nitrate oxygen. This procedure is rather tedious but no substitute can be offered at present.

The analytical work connected with this investigation was carried on by Messrs F. Bachmann, J. T. Meckstroth, and F. L. Wurl, to whom I wish to express my appreciation for their valuable assistance.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

THE January quarterly (and annual) meeting of the Massachusetts Association of Boards of Health was held at the Hotel Brunswick, Boston, Thursday, January 28, 1915, under the presidency of Mr. James C. Coffey of Worcester.

The following named persons were elected to membership: Joseph E. Herrick of the Beverly Board of Health; M. R. Jerome Crowley of the Beverly Board of Health; Cooper Gaw of the New Bedford Board of Health; John Albert Sullivan, M. D., of the Pittsfield Board of Health; E. J. Donoghue, M. D., of the Boston Board of Health; Karl R. Bailey, M. D., of the Boston Board of Health; Joshua Edwards of the Maynard Board of Health; O. S. Fowler of the Maynard Board of Health; Miss Ruth O. Pierson of the Wellesley Board of Health; George E. Emerson, M. D., of the Weymouth Board of Health; William F. Gibbons, D. D. S., of the Clinton Board of Health; Joseph E. Lamoureux of Lowell; James F. Moran of the Clinton Board of Health; Allan J. McLaughlin, M. D., Commissioner of Health of Massachusetts; George E. Howe of the Lancaster Board of Health.

On motion of Dr. George L. Tobey, chairman of the Legislative Committee, it was voted that the committee be authorized to employ legislative counsel for the ensuing year at an expense not to exceed $150.

The Nominating Committee, Dr. Chapin, Dr. Stevens and Dr. MacKnight, presented the following names for officers of the association, and on motion of Dr. L. M. Palmer of Framingham it was voted to authorize the secretary to cast one ballot for election of the list as presented:

President, Dr. M. J. Rosenau of Brookline.

First Vice-President, Prof. George C. Whipple of Cambridge.

Second Vice-President, Dr. L. A. Jones of North Adams.

Secretary, Dr. F. H. Slack of Boston.

Treasurer, Dr. F. G. Curtis of Newton.

Executive Committee (elective members), Dr. A. S. MacKnight of Fall River, Dr. F. S. Mahoney of Boston, Dr. F. H. Thompson of Fitchburg, R. L. Newcomb of Salem, Dr. F. G. Wheatley of North Abington.

Dr. Francis George Curtis, Treasurer, presented his annual report as follows:

Report of the Treasurer, 1914.

Francis George Curtis, Treasurer, in account with the Massachusetts Association of Boards of Health.

Dr.

Balance from 1913	$1,545.83
Interest	43.72

Dues, etc., 1913	$33.00
Dues, etc., 1914	440.50
Dues, 1915	3.00
Cash for July meeting	82.50
Total receipts	$2,148.55

Cr.

American Public Health Association, Journals	$371.89
Arthur T. Lovell, reporting meetings	107.20
Printing, etc., for secretary	104.33
Clerical assistance for secretary	12.00
Printing, etc., Committee on Vital Statistics	15.53
Printing, Committee on Isolation in Certain Diseases	50.50
Printing, new constitutions	35.55
Printing and stationery for treasurer	28.50
Cigars	36.80
Dinners, July meeting	83.75
Sundry cash payments by treasurer	3.00
Total disbursements	$849.05
Balance to 1915	1,299.50
	$2,148.55

In Savings Bank	$1,126.14
In National Bank	121.86
Cash	51.50

Respectfully submitted,

FRANCIS GEORGE CURTIS,
Treasurer.

The report of the treasurer was accepted and placed on file.

The following papers were then read:

"The Control of Venereal Diseases," by Dr. F. H. Baker.

"The Reporting and Control of Venereal Diseases, by Dr. Lewis Chargin.

"Evening Clinics for Syphilis and Gonorrhœa," by Michael M. Davis, Jr.

(These articles and discussions appear elsewhere in this issue of the JOURNAL.)

On motion of Dr. Palmer, it was voted: That the Massachusetts Association of Boards of Health place itself on record as in favor of requiring that venereal diseases be made reportable, and we request that the State Commissioner of Public Health take the proper and necessary steps to have this brought about as soon as practicable.

On motion of Dr. Woods, it was voted: That the chairman appoint a committee of five to act as a committee of this society on venereal diseases and follow whatever suggestions are offered by the society in the line of work.

The chairman announced the following members to serve on this committee: Dr. Frederick H. Baker, Worcester, chairman, Dr. Francis X. Mahoney, Boston, Dr. L. M. Palmer, S. Framingham, Dr. F. G. Curtis, Newton, Dr. F. M. Kennedy, New Bedford.

Convention of Massachusetts Health Officers.

Thursday, April 29, will be a great day for the Health Officers of Massachusetts.

The State Department of Health and the Massachusetts Association of Boards of Health are planning for an all day meeting to be held at Ford Hall in Boston.

The morning session, at 10.30, will be a general meeting open to the public, at which addresses will be made by His Excellency David I. Walsh, Dr. Charles W. Eliot, president emeritus of Harvard University, and Prof. William T. Sedgwick, president of the American Public Health Association, and others. Dr. A. J. McLaughlin, commissioner of health, will preside at this meeting and speak on the "Tuberculosis Situation in Massachusetts." President Eliot will speak on the "Main Points of Attack in a Campaign for Public Health." At this meeting a roll of the cities and towns will be called, and it is hoped that each one will be represented by a delegate.

Following the morning session will come the regular meeting and lunch of the Massachusetts Association of Boards of Health, at which the new president, Dr. Milton J. Rosenau, will preside. This meeting will be addressed by Dr. Eugene R. Kelley, the new director of the division of communicable diseases of the State Department of Health, on the general subject of "The Relation of the State Department to Local Boards of Health."

This will be followed by short addresses by four of the district health officers and four representatives of the local health departments.

At these meetings special emphasis will be given to public health problems of small communities. The morning and afternoon sessions will be open to the public.

Invitations to the lunch will be limited to members of the Massachusetts Association of Boards of Health and to those eligible for membership in this Association.

Health Department Reports and Notes.

REPORTS.

Newport, Rhode Island.

The report of the Board of Health of Newport, although late in appearing, is well prepared and indicative of efficient and progressive work. Contagious disease has been generally held in check satisfactorily although there was an epidemic of scarlet fever early in the year which filled the regular hospital and made it necessary to open an emergency hospital. The typhoid situation was worse than usual as a result of the outbreak among the members of the artillery company who attended the ill-fated encampment at Put-In Bay. Although twenty cases came from this source, there was no spread of the disease in the city.

Medical and dental inspection of schools is one of the strong points of the Board and is apparently carried on according to the latest and most approved standards, although still further improvements are planned. Daily visits by school inspectors to both public and parochial schools are made and all exclusions are followed up by the school nurse. A free dental infirmary is also maintained by the Board of Health.

The report of the milk inspector is of unusual excellence from the standpoint of popular education. Inspection of farms and stores and the collection and analysis of milk are regularly carried out. Conditions are being greatly improved among the producers, but difficulty has been experienced in teaching them to produce a milk which will come within the bacterial standard. Clean floors with open-top milk pails or clean cattle with no arrangement for cooling milk will not produce a bacteriologically clean milk. It is possible that publication of bacterial counts or an occasional prosecution would serve to stimulate the farmers' interest in bacteria.

The report, as far as it goes, is excellent but it might be improved by further systematization and the addition of such features as a financial report, a list of the staff of employees of the Board, and some reference to other phases of work such as sanitary inspection, infant mortality, suppression of insect pests, etc., if any work is done along these lines.

Norristown, Pennsylvania.

Conditions in Norristown are apparently not all that they should be, as far as public health work is concerned. From the annual report of the Board of Health for 1914 we learn that Norristown claims a population of 31,000 but is spending less than eight cents per capita for health. The only paid employee of the Board is Mr. Charles E. White, who serves as secretary of the Board, health officer, and registrar of vital statistics at a salary of seventy dollars per month. We are forced to the conclusion that Mr. White is either a philanthropist or a part-time employee.

The death-rate is given as 12.9, a very creditable figure, although it may be noted that it is based on the deaths for 1914 and the population as estimated for 1915. The contagious disease situation has been somewhat worse than the average. Two hundred and twenty-seven cases of German measles occurring in a space of three months are considerately called a "near-epidemic" and 107 cases of scarlet fever in four months are glossed over in the same way. Abnormally high fatality rates for diphtheria, pneumonia, and tuberculosis indicate incomplete reporting of cases and the Board has asked that the requirements of the state law for the quarantine of the minor contagious diseases be reduced so that people will report them more generally.

In the past, before the installation of the sewer, the houses discharged their waste water into the street gutters, but connection with the sewer is now being required wherever possible and it is hoped that the old insanitary conditions will soon be a thing of the past.

The Board is now at work on an attempt to enforce the cleaning-up of houses and yards and is considering placing a placard bearing the words "Dirty House" on the front door of any house which is not cleaned up on first notice.

The Board has made many unsuccessful attempts to get the Council to provide an isolation hospital but the matter has received no attention. As a result when a case of diphtheria appeared in the Charity Hospital the Board established absolute quarantine on the entire hospital. State Commissioner Dixon interfered with this judgment and the case was isolated on the third floor.

No tabulation of deaths by causes is published. There is no detailed financial statement. Tabulated records of all sorts are conspicuous by their absence. Apparently no work is done by the Board on the inspection of milk and other food supplies, on infant mortality, tuberculosis, medical inspection of schools, etc.

Los Angeles, California.

In a comprehensive and yet concise report for the year ending June 30, 1914, Commissioner L. M. Powers announces the results of a very gratifying year for the city health department. The booklet is profusely illustrated, showing conditions both good and bad, that merit attention. An "organization chart," showing division of authority and the salaries of each of the public servants who are connected with the health department, gives a very interesting view of the organization and scope of the department as well as the relative cost to the city of each of its branches or subdivisions. The chief divisions immediately under the commissioner of health are: Nursing; school inspection; laboratories; fruit and vegetable inspection; milk inspection; general health—including sanitary inspection, indigent sick and contagion; quarantine; detention hospital; clerical work; housing; meat inspection; contagious diseases and vital statistics.

The death-rate for the city, based on a population estimate of 500,000 for the year 1913, was 11.59 per 1,000 and the infant mortality rate was 78.73. No rates are given for previous years, however, and so no comparisons can be made by the reader.

The tuberculosis rate for the native population, according to the commissioner, is increasing and there is a great need of nurses for visiting homes and giving instruction to the tuberculous. A table showing age distribution for tuberculosis shows the highest incidence for any five-year period to be between the ages of 25 and 30 years. As regards occupational distribution, housewives, laborers and students appear to be the most susceptible in the order named.

Fifty-eight cases of smallpox with no deaths were reported. Five of these had been vaccinated before exposure but they were adults who had been vaccinated in childhood. Seven cases of leprosy were reported for the year with one death.

The fact that only 171 cases of gonorrhœa and 193 cases of syphilis were reported shows that the state law requiring the reporting by number of all cases of venereal disease treated, is not being enforced.

Nine of the ten cases of pellagra reported were fatal. One death occurred due to rabies.

Reports were received during the year of 325 cases of typhoid fever. That case returns were not complete is indicated by the fact that the case fatality rate based on this number was 16.92 per cent.

Flexner serum was administered in 41 cases of cerebro-spinal meningitis while 22 cases were not so treated. Twelve of the cases where the serum was used recovered. Five of the cases where the serum was not used, got well.

Cold storage is termed by the fruit and vegetable inspector, "one of the greatest blessings the people of our country have enjoyed." The reason, in his opinion, that the public is so much prejudiced against cold storage is that unscrupulous dealers have persisted in labeling only culls and rejects as "storage" and in selling the better quality of storage produce as "fresh."

The year's expenditures by and for the department totaled $115,708.11 and the receipts amounted to $6006.74. Salaries cost the city $98,674.98 of the above.

NOTES.

"Typhoid Mary" Again.—"Typhoid Mary"—wholesale disseminator of disease—for two years lost from the observation of the New York City Health Department—has appeared again! She is now charged with the responsibility for the recent typhoid epidemic of twenty-five cases in Sloan Hospital in New York City, and is again in detention in River Side Hospital—North Brother Island—where she was kept in confinement from March 20, 1907, to February, 1910.

Mary Mallon is perhaps the most famous "carrier" in the world and the persistence with which typhoid fever—to which she herself is immune—follows her—and makes an inevitable appearance in the families or institutions in whose kitchen she cooks—has made her name synonymous with the term, "human carrier." She was first apprehended as a "carrier" in 1906 after having been instrumental in starting several small—and at least one large epidemic. She was detained under constant observation for three years—but she was finally freed in 1910—under the promise that she would report regularly to the health department and would not engage herself as a cook.

The Sloan Hospital epidemic of January and February was traced to the kitchen as food borne with the cook as the probable cause. She left the institution at once but was later found and confessed her identity as Mary Mallon. She had been working under an assumed name.

✤

Health Teaching by Leaflets.—The *Medical Officer* for February 27 takes occasion to comment favorably upon a method of health education employed by the Maine State Board of Health. It is generally admitted that the most efficient method of teaching domestic hygiene is through the schools. Acting upon this principle the Maine State Board of Health has issued a number of leaflets each one of which summarizes in simple language the important points concerning some topic of public health interest such as "The Teeth and Their Care", "The Care of Milk in the Home," etc. These leaflets are sent to the teachers throughout the state. Each leaflet is made the text of a particular lesson and after the subject is thoroughly explained each child is allowed to take one of the leaflets home.

Clean Up!—The following good advice is being dispensed by W. C. Folsom, Chief Sanitary Inspector of Cincinnati, Ohio:

"The Chamber of Commerce is now agitating the second real clean-up campaign in the history of Cincinnati. Will it be a success? Of course; but it depends entirely upon the coöperation given by each and every citizen. Individually and collectively we must 'put our shoulders to the wheel and help. You ask, 'What can I do?'

"You must act. To talk and complain is not enough. Clean up your entire premises first, then look for trouble elsewhere. Begin today.

"Your own cellar needs attention. Remove all the dirt, rubbish and articles you will never use again. If you have a furnace, burn the combustible materials, otherwise place the papers, ashes and rubbish in receptacles and let the city wagons take it away. Articles useless to you but valuable to others will be glady taken by the charitable organizations.

"When your cellar is clean and orderly look over the attic and storage room. Repeat the process.

"The back yard comes next. Rake over the grass, pick up the tin cans and papers, remove the unsightly objects, repair the outbuildings and fences, whitewash the chicken house inside and paint the outside, repair the chicken run and clean up the filth, wash out the brick or cement pavement, and do the other hundred and one little things to make it clean and tidy.

"Provide a water-tight and fly-proof covered metallic garbage can. Look over the one you have; if it is in bad shape, buy a new one. It is a duty you owe the community to keep all garbage in the required container.

"Covered metallic cans are required for papers and ashes. Now is the time to provide your home with fire-proof and sanitary receptacles.

"Have you a stable? If so, it probably needs a cleaning. Do it now. Provide a tight, fly-proof box or pit in which to keep all manure. Use disinfectants about the stalls and in the box after each emptying. Disinfectants will drive away the adult flies and prevent the eggs from hatching. The majority of flies breed in manure.

"When all this is done, Mr. Owner or Mr. Ten-

ant, you can and should see that the unsanitary conditions of the neighborhood are eliminated.

"If a vacant lot needs cleaning, why not get your neighbors to "chip in" and hire someone to clean it? Don't consider you have done your duty by simply reporting the condition to the Chamber of Commerce. Anyone can complain. We ask your complaints only after you personally have tried and failed to have the condition remedied.

"Begin today. Now is the time to act. Do your part at once. Madam, it is your duty to see that your husband and sons 'get busy.'"

❦

Is Inspection Worth While?—A school survey instituted in Marshall County, Minnesota, to ascertain actual conditions in regard to the health of rural school children, brought out the following facts, according to Dr. H. W. Hill of the Minnesota Public Health Association:

"The returns from 397 children showed that less than 17 per cent. had perfect teeth; two-thirds had had toothache; nearly two-thirds had had measles; almost as many, mumps; one-third had had whooping cough; 9 per cent. scarlet fever; 4 per cent., diphtheria; while over-one-half had colds during the one month of the investigation, 138 having colds at the time the answers were written. Defective sight was found in 15 per cent., and defective hearing in about 7 per cent. There were 87 absences during the month on account of illness."

❦

"Keep Well Leaflet."—The Bureau of Public Health Education of the New York City Department of Health has issued recently the first of a series of "Keep Well Leaflets." The leaflet is addressed to "Mr. Indoor Worker."

In several brief, concise and pointed paragraphs appropriately illustrated, attention is called to the vital need of every person employed at indoor work of plenty of fresh air, sufficient and well-placed light, rest, recreation, physical exercise and proper food.

Mr. Bookkeeper, Mr. Clerk, Mr. Shopworker, Mr. Tailor, Mr. Shoemaker, Miss Stenographer, Miss Saleslady, Miss Dressmaker, Miss Garment Worker, and Miss Milliner are each detained one moment, just long enough to be questioned about under-nourishment, flabby muscles, round shoulders, faulty chest development, diminished chest expansion, sallow complexion, anæmia, impaired vision, constipation, head-ache, lack of appetite, and nervousness. Sane and striking advice is given in a plain and acceptable way. The logic of the style and the general attractiveness of the leaflet help it to do that almost impossible and important task—persuade the working man or woman who is not sick that care must be exercised to keep well.

❦

Will Inspect Meat.—Louisville, Ky., will inspect all of its meat rigidly in the future if its new ordinance is enforced. When it was recently shown that some of the Louisville butchers were killing horses and selling their flesh for food, sentiment in favor of inspection waxed exceeding strong. The ordinance aims to impose such restrictions and conditions that when the local butchers have complied, they will be eligible to federal inspection, which will cost them nothing and will relieve the local board.

❦

Public Pays for Quarantine.—The December *Bulletin* of the Indiana State Board of Health contains a note on the legal enforcement of payment for quarantine supplies by the city. Not all will agree with them but it is interesting to see how much it is favored in Indiana.

"The city authorities of Goshen, according to advice of their attorney, refused to pay for supplies for quarantined families. The groceryman who furnished the supplies brought suit and secured payment. The judgment was rendered by Judge James S. Drake, of the Circuit Court of Elkhart County. The case read: Albert C. Folks and Frank Folks vs. the City of Goshen and Township of Elkhart, on account. Judge Drake held that the township was not liable but that the city must pay the bill and so the costs were assessed against the city of Goshen. Other courts have decided that a family under quarantine is virtually in prison for the benefit of the public, not for its own benefit. There is no question about supporting a prisoner when he is committed, why, therefore, should there be any question about supporting an individual or family when quarantined? There have probably been ten or twelve decisions of this kind and yet city attorneys are continually advising against the payment of bills incurred on account of quarantine."

A New Version.—The *Bulletin* of the Detroit Board of Health for December contains a nursery rhyme with a moral. It is so to the point and so many—who would not otherwise become acquainted with conditions—may be enlightened through it that it is printed here as follows:

"This is the barn that Jack built.

"This is the outhouse that stood by the barn that Jack built.

"This is the filth that lay by the outhouse, that stood by the barn that Jack built.

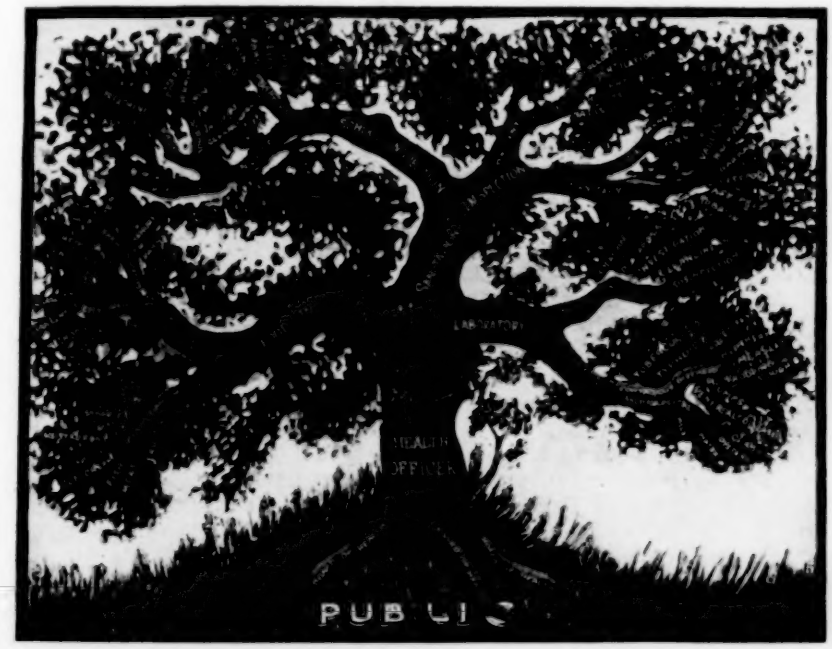
"This is the fly with his dirty feet, that was bred in the filth, that lay by the outhouse, that stood by the barn that Jack built.

"This is the pail, that carried the fly, that was bred in the filth, that lay by the outhouse, that stood by the barn that Jack built.

"This tubercular cow with the crumpled horn, was milked into the pail, that had carried the fly, that was bred in the filth, that lay by the outhouse, that stood by the barn that Jack built.

"This is the milker, all dirty and torn, who milked the sick cow with the crumpled horn, into the pail, that had carried the fly, that was bred in the filth, that lay by the outhouse, that stood by the barn that Jack built.

"This is the dealer, all shaven and shorn, who hired the milker, all dirty and torn, who milked



Soil—The Public—Furnishes the sustenance
Fertilizer—Appropriations—Stimulates growth
Roots—Board of Health—Strength and stability
Trunk—Health Officer—Bears the burden
Sucker—Garbage Service—Should be removed
Band—Clerk—Unites the branches
Branches—Work of the several bureaus

From Bulletin of the New Haven, Conn., Board of Health;
Frank W. Wright, M. D., Health Officer.

the sick cow with the crumpled horn, into the pail, that had carried the fly, that was bred in the filth, that lay by the outhouse, that stood by the barn that Jack built.

"This is the baby—sick and forlorn! who had milk from the dealer all shaven and shorn, who hired the milker, all dirty and torn, who milked the sick cow with the crumpled horn, into the pail, that had carried the fly, that was bred in the filth, that lay by the outhouse that stood by the barn that Jack built."—*Farmers' Review.*

Crowded Cars—A Health Menace.—*Letter from the Mayor of New York City to the Commissioner of Health.*—The *Weekly Bulletin* of the Department of Health of New York City, March 6, contains the following letter:

February 26, 1915.

Dr. S. S. Goldwater,
Commissioner of Health:

Sir:

It is plain that the accommodations which are offered to passengers on many of the transit lines in the City are not what they should be. Complaints have been particularly numerous during the past winter; such complaints have been made directly to this office and have been voiced freely in the public press. The Bulletin of the Department of Health shows that similar complaints have reached your Department, and that citizens, despairing of obtaining any relief through the Public Service Commission, look to the Department of Health for help.

Section 1176 of the Charter reads in part as follows:

"Whenever any business pursuit shall, in the opinion of the Board of Health, be in a condition or in effect dangerous to life or health, said Board may enter in its records the same as a nuisance, and order the same to be removed, abated, suspended or improved."

Cannot the Department of Health, acting in accordance with this provision of the Charter, take steps to abate the nuisance of overcrowding? There should be better conditions on all of the lines during non-rush hours, and no company should be excused from the duty of using, at any time, as many cars as it may be safe and possible to operate up to the limit of the number required to safeguard the health of its passengers.

You have shown that overcrowding is a menace to health, and the courts will undoubtedly sustain you in a vigorous attempt to obtain relief from the present notorious and intolerable conditions which offend not only against health but against decency.

Please take this matter up at once. I shall be ready to confer with you at any time as to the methods to be pursued, and to give you what assistance I can in accomplishing the desired object.

Yours very truly,
(Signed) JOHN PURROY MITCHEL,
Mayor.

Following the receipt of the above letter the Board of Health took action, ordering the New York Railways Company to so regulate their service that the total number of passengers on cars of named avenues and streets "shall not exceed one and one-half times the seating capacity of such cars."

Just as Dead.—The North Carolina *Health Bulletin* published in the March issue the following with the title "Just As Dead." We suggest the addition of "Or Deader?" with the interrogation mark as a possible improvement:

"It doesn't seem to occur to the average person that tuberculosis or Bright's disease, typhoid fever or pneumonia, will kill a person just as dead as smallpox. To hear a lot of persons talk, one would think that smallpox is so fatal that it would kill a man about ten times as dead as any of the other diseases."

Prevention is Not Spectacular.—The January Toronto *Health Bulletin* contains the following which should be brought to the notice of the public:

"It has been repeatedly observed that one of the principal reasons why preventive medicine is not more highly appreciated and does not receive better financial support, is the fact that deaths from any disease lack tragic interest. A little life crushed out by an automobile or street-car receives marked publicity through the press and elicits universal sympathy, and naturally so; but the fact that on the same day several in the same municipality had died in their beds from preventable diseases, creates no comment.

"The number slain in the present war already is truly appalling, and how many lives will yet

be sacrificed no one can predict. During the twenty-five years in which Germany has been preparing for this war there has been going on a constant civil war between all the nations now engaged and the germs of preventable diseases; these diseases having carried off in these 25 years 94,500,000 human beings in addition to the millions who have survived these."

DEPARTMENT OF HEALTH--CINCINNATI OHIO

DIVISION OF FOOD INSPECTION

MILK DEPOT SCORE CARD

Name of Plant ..... Permit No. ..... Time of Inspection.....

Address ..... Phone .....

Milk Received ..... Gals; Cream { Sweet ..... Gals. / Sour ..... Gals.

Date of Inspt. 191

Date of last Inspt. 191

Number of Shippers ..... Butter mfg. ..... Lbs .....

All milk produced by dealer ..... Amount .....

No. of employees handling milk and Equipment ..... Drivers .....

Condition of delivery wagons .....

Time milk received ..... Time of pasteurizing .....

Make of pasteurizer .....

Remarks .....

DETAILED SCORE

EQUIPMENT	SCORE Perfect	SCORE Allowed
BUILDING:		
Location	2	
Free from contaminating surroundings	4	
Arrangement	16	
Separate receiving room	1	
Separate pasteurizing and bottling rooms	3	
Separate wash room	2	
Separate boiler room	2	
Separate refrigerating room	2	
Separate dressing room for employees	3	
Sanitary, convenient toilet and washing facilities for employes	3	
Construction	18	
Impervious floors	2	
Floors tight, sound, cleanable	2	
Walls impervious, 4' high	1	
Walls tight, sound, cleanable	2	
Ceiling tight, smooth, clean	2	
Floors well drained	2	
Trap sewer connections	2	
Provisions for pure air	3	
Provisions for light	3	
Screens or cloth windows and doors	3	
Minimum of shafting, pulleys, hangers open etc.	1	
APPARATUS:		
Boiler	2	
Turbine bottle washer	2	
Bottle soaker	1	
Sterilizer for bottles	5	
Sterilizer for cans	3	
Condition of cans	2	
Pasteurizer	5	
Efficiency (Note 2)	4	
Recording thermometer	2	
Bottling machine	2	
Capping machine	2	
Wash bowl, soap and towel in handling room	2	
Refrigerating machinery	1	
Milk clarifier	2	
Cooler	5	
Milk protected	3	
Milk exposed	1	
CONDITION OF HANDLING MACHINERY	4	
LABORATORY EQUIPMENT	2	
WATER SUPPLY	8	
Clean and fresh	3	
Convenient and abundant	2	
	100	

METHODS	SCORE Perfect	SCORE Allowed
BUILDING:		
Cleanliness	17	
Floors	2	
Walls	2	
Ceiling	2	
Doors and windows	1	
Freedom from odors	2	
Freedom from flies	4	
Pipes, cans, shaftings, etc.	3	
General neatness	1	
APPARATUS:		
Cleanliness	17	
All equipment thoroughly washed, rinsed and sterilized immediately after use	3	
Milk handling machinery	3	
Sterilized with live steam	4	
Protection from contamination	3	
All equipment sterilized immediately before use	4	
BOTTLES	11	
Thoroughly washed and rinsed	2	
Thoroughly sterilized with steam 15 min. or boiling water 5 min.	5	
Steam jet	1	
Inverted in clean place	3	
HANDLING MILK	42	
Received below 50°	4	
Received between 50° and 60°	2	
Received between 60° and 70°	1	
Rapidity of handling	3	
Freedom from undue exposure to air	3	
Cooling	3	
Promptness	2	
45° or below	4	
45° to 50°	2	
Bottle capping machine	2	
Bottle caps sterilized	3	
All milk and cream pasteurized	5	
Protection during delivery (Iced in summer.)	2	
Storage; below 50°	4	
All milk clarified	2	
MISCELLANEOUS		
Cleanliness of employes	11	
Personal cleanliness	2	
Clean, washable clothing	2	
Cleanliness of delivery outfit	2	
Name, address and permit No. on wagons	1	
Inspection of dairies supplying milk	2	
Bacteriological examinations made	4	
Total	100	

Score for Equipment ..... Score for Methods .....

NOTE 1.—If any condition in any particular, is exceptionally bad the total score shall be nothing.

NOTE 2.—Flash heating to 145 F.-30 min. holding, with immediate cooling efficient. Vat pasteurizing requiring more than 12 minutes heating 70° to 120° or same to cool not efficient.

Under Remarks report time of heating, holding and cooling.

Water Supply .....

Condition ..... Laboratory Report .....

Water Sample Submitted (Date) .....

Illness in family, employes, or their families within last 30 days?

Typhoid ..... Scarlet fever .....

Diphtheria .....

Any other contagious or infectious disease in family, employes or their families .....

"Sore Throat" must be immediately reported to health officer

I have been instructed as to requirements and understand same and am personally responsible for Chemical and Bacteriological standard of the product.

(Signed) .....
Proprietor-Manager

(Signed) .....
Inspector

FILE No. .....

Approved
J. H. LANDIS, Health Officer. R. B. BLUME, D. V. S., Chief Food Inspector.

What is Your Motto?—"Public health is purchasable. Within natural limitations a community can determine its own death-rate."—*Weekly Bulletin*, New York City Department of Health.

"Sanitary instruction is even more important than sanitary legislation."—Duluth (Minn.) Health Department, *Monthly Bulletin*.

"No sanitary improvement worth the name will be effective, whatever acts you pass or whatever powers you confer on public officers unless you create an intelligent interest in the public mind."—City of Winnipeg—*Bulletin*.

"Nothing great was ever achieved without enthusiasm."—*Monthly Bulletin*, New Haven, Conn.

"Public health is the foundation upon which rests the happiness of the people and the welfare of the state."—DISRAELI. *Monthly Report*, Toronto, Canada.

"Reform directed towards the advancement of public health must ever take precedence over all others."—DISRAELI. *Health Bulletin*, Toronto, Canada.

"Money spent for the public health is an investment, not an expenditure. It costs less to keep the people well than to get them well."—*Health and Hygiene*, Louisville, Ky.

✽

Health Officers' School.—The following announcement in the Kansas Health Bulletin of the Health Officers' School, now in session, tells of the thorough and modern way one state is endeavoring to work out its public health salvation.

"The Fifth Annual School for Health Officers and Physicians will be held this year the two weeks beginning Monday, April 19, to and including Saturday, May 1. The first week will be given at the University at Lawrence, and will consist practically of postgraduate work in the fundamental sciences of medicine given by the faculty of the School of Medicine. The second week will be given at the Bell Memorial Hospital at Rosedale, the forenoon of each day to be devoted to clinics in the hosptial, and the afternoons to distinctively public health instruction.

"Three of the most distinguished sanitarians in the United States have been secured for giving the instructional work of this public health course, namely, Surgeon M. J. White, of the United States Public Health Service, Doctor John S. Fulton, secretary of the Maryland State Board of Health, and Doctor A. J. Chesley, epidemiologist of the Minnesota State Board of Health. Other work will be given by the faculty of the School of Medicine and the officers of the State Board of Health."

✽

Trachoma in Kentucky.—In the Public Health Report of March 5, 1915, Surgeon Jno. McMullen, of the United States Public Health Service, reports the results of a Trachoma Survey in the mountain section of eastern Kentucky.

The type of disease found in the 23 counties investigated is very severe and mutilating in its effects. The following excerpts show the prevalence and immediate need of preventive measures:

"A total of 18,016 persons were examined, and 1,280, or practically 7 per cent., were found to be suffering with trachoma. Of this number 16,696 were school children and 1,324 were persons examined outside of the schools."

. . . . .

"As a large number of cases are known to exist in the other sections of the state the urgency of beginning the work of eradication and prevention becomes apparent. There is abundant evidence that trachoma is increasing, and, should history again repeat itself, every condition is present for a repetition of the fearful epidemics of this disease experienced in Europe in the nineteenth century.

"These thousands of cases of trachoma known to exist in Kentucky should be given prompt relief, both from a public health standpoint to prevent the further spread of the disease, and to save the patient from becoming a burden to himself and to his friends, and often a public charge. The service has demonstrated that trachoma hospitals can be operated at a comparatively small cost. It is now the duty of the state and local authorities to establish a sufficient number of these hospitals in the infected regions to be within easy reach of the trachoma patients.'

✽

Licensed Barber Shops.—The greater part of the February issue of the *Bulletin* of the Winnipeg Department of Health is devoted to the inspection and licensing of barber shops. The relation of sanitary barber shops to the public

health is recognized and this city intends to see that such sanitation prevails. The conditions in some shops are here exemplified:

Recently we find that a good many new shops have been opened, and these of a kind very poorly equipped. Attempts are made to open up barber shops in very unsuitable places, some without plumbing. Only last week we found a case where a barber's chair had been placed in the front parlor of a cottage with only an archway between the barber shop and the dining room. The bedroom also opened into the operating room.

Then we have the poorer class of barber shop, where a small store is rented and a wash-basin installed. Frequently, in order to save rent, rooms are partitioned off in rear and used for living purposes, the centre rooms often being without any windows. Of course, when discovered the living rooms are closed unless they are in rear of a corner store where double sash windows can be had on at least two sides of the building.

✤

Investigate Laundries.—An investigation was recently made by the Department of Health of the City of New York into methods employed in commercial laundries in that city. Three places were visited, one being found in an insanitary condition. The investigation appears to show that vermin are not killed in the process of washing. Bacteriological examinations were made as follows: The organisms used as the indicators were the bacillus prodigiosus and bacillus coli. Cultures of these organisms were applied directly to the garment; placed on squares of gauze and folded into muslin and sewed into the garment; placed on squares of flannel blankets and folded into muslin and sewed into the garments. The garments were then placed in the center of the bag and passed through the washing process. When the garments were returned to the laboratory they were placed on sterile tables and the squares of gauze and flannel were cut into small pieces and placed into medium. These preliminary tests indicate that in the present laundry methods of "wet washing" neither the height of the temperature nor the duration of the application of the cleansing solution is sufficient to penetrate the interior of the bundles to such an extent as to destroy completely certain kinds of organisms.

Personal Notes.

Honor to Whom Honor is Due.—Dr. John N. Hurty, Secretary of the Indiana State Board of Health and former President of the American Public Health Association was honored on the fourteenth of March with an "Anniversary Banquet," at the Claypool Hotel in Indianapolis. The banquet was given by Indiana physicians and celebrated the beginning of the twentieth year of Doctor Hurty's service in Indiana health work. About 225 people attended the banquet —and large numbers of telegrams were received from prominent health workers and authorities over the entire country.

Governor S. L. Ralston of Indiana presided as master of ceremonies and prominent speakers on the toast list were: Dr. Victor C. Vaughn, Ann Arbor, Michigan; Dr. Geo. H. Simmons, Chicago; Dr. A. R. Craig, Secretary American Medical Association, Chicago; Dr. W. A. Evans, Chicago; President W. E. Stone and President W. L. Bryan, representing the two Indiana state universities. Doctor Hurty was presented with a "Huxley vase" by Thos. R. Marshall, Vice-president of the United States—a testimonial from Indiana physicians—and the secretary's response to this tribute ended the program.

"During my term as health officer in Chicago," said Dr. William A. Evans, former health commissioner, Chicago, "I had frequent opportunity for learning from Hurty. The state of Illinois and the city of Chicago are under obligations to Indiana for placing Doctor Hurty in this office and for continuing him in it. I was better able to discharge my duty because down in Indiana, Hurty was discharging his duty." His subject was "The Turbulent Life of a Health Officer."

"It is possible there never has been any doubt in the minds of intelligent people as to the value of health to the individual," said Dr. W. E. Stone, president of Purdue university, at Lafayette, "but it is only in recent years that we have begun to realize the value of health as an asset to the state. The old idea was that health was man's private affair. Doctor Hurty

has been called the most useful citizen of Indiana, and I am sure that no one that knows what he has accomplished will begrudge him this. He deserves all the praise and honor that individual people can bestow upon him."

In his response, after the presentation of the Huxley vase, Doctor Hurty said:

"My thought is one of joy and great delight. Never before, in all my experience, has approbation been apportioned to me in such liberal measures. I never dreamed of any such occasion. I am more accustomed to kicks."

Doctor Hurty gave a brief summary of the history of the department of health since he has been health commissioner, and told of the laws for the benefit of humanity which have been passed by the legislature and of the uphill fight he has had in getting the people to follow his suggestions.

Of the hundreds of telegrams received from those unable to be present, the following three are typical of the sentiment expressed by all:

Dr. Geo. M. Kober, Washington, D. C.: "The American medical profession has long since considered Doctor Hurty as one of the foremost sanitarians in this country, whose efficient work as a health officeral has had its influence, not only in your state, but wherever attention is given to public health activities."

Dr. M. J. Rosenau, Boston, Mass.: "He has been a pioneer in America and a leader of whom we are all proud. Doctor Hurty's long service and effective work makes him the dean of American sanitarians. It would be a grand thing if all of the states of our Union could have men like Doctor Hurty to guide and direc ttheir health problems."

Dr. Chas. V. Chapin, Providence, R. I.: "Even if his friends were not there to do him honor, the consciousness that he has done so much to advance the cause of public health, that he has stirred such an active and lively interest in sanitation, that he has saved lives and prevented sickness, that he has taught the mother how to protect her little one from disease, that he has put Indiana on the health map of the United States ought to give him cause for pleasure and happiness all the rest of his life."

Another County Health Officer.—Word has been received from the North Carolina State Board of Health stating that another addition has been made to the list of full-time health officers in that state by the appointment of Dr. M. T. Edgerton as Pitt County Health Officer.

Doctor Edgerton is a native of Carolina, and a graduate of Johns Hopkins and the university of Georgia. His appointment makes ten counties in North Carolina employing men giving their full time to health work.

The following were elected to membership in the American Public Health Association on March 25, 1915:

George Porter, M. D., Toronto, Canada.

William Fletcher Jolley, M. D., Troupsburg, N. Y.

Thomas Jefferson Duffield, P. O. Box 272, Summit, N. J.

Iva M. Garrison, East Greenbush, Rensselaer, N. Y.

Geo. Theodore Boycheff, Solvay, N. Y.

Joseph Ramon Brown, Seward, N. Y.

Wm. R. Lane, M. D., Wantagh, N. Y.

Henry Francis Parker, Rockville Centre, N. Y.

Henry Wm. Taylor, Albany, N. Y.

Wm. Livingston D'Olier, Philadelphia, Pa.

Robert Carnahan Kirkwood, Lake View, Wash.

Robert Clarence Derivaux, Washington, D. C.

James R. Brown, New York.

Geo. A. Chapman, M. D., Glens Falls, N. Y.

Herman G. Germer, M. D., Canastota, N. Y.

Geo. J. Bryan, Fayetteville, N. Y.,

James Delavan Heard, Pittsburgh, Pa.

Albert Pierce Traynham, Richmond, Va.

Wm. Oliver Howell, 4310 Pine St., Philadelphia, Pa.

Alan Greenleaf Terrel, Riverhead, N. Y.

Ira Ayer, M. D., Philadelphia, Pa.

Edmund C. Van Dusen, Athens, N. Y.

Geo. D. Bradford, Homer, N. Y.

Calvin N. Barrick, Allentown, N. Y.

Ernest Leroy Wilson, Bolton Landing, N. Y.

Bertis Rupert Wakeman, Watertown, N. Y.

Charles Philip McCabe, Greenville, N. Y.

Seaver Z. Fisher, M. D., Randolph, N. Y.

Public Health Notes.

Progress in Baltimore.—The Fifth annual Health Conference of the Medical and Chirurgical Faculty of Maryland, was held in Osler Hall, February 8, 9, 10, 11, 12, and 13 with the following noted speakers on the program.

Dr. Harvey W. Wiley, subject, "The Wealth of Health"; Dr. W. L. Rodman, "Pre-cancerous Lesions"; Dr. Arthur Cramp of Chicago, "Fakes and Frauds in Medicine"; "Physical Aspects of Play," Dr. William Burdick, Director Public Athletic League of Baltimore; "Mental Hygiene" Dr. Adolph Meyer, Director, Phipps Psychiatric Clinic, Baltimore; "The Menace of Bubonic Plague," Dr. Wm. C. Rucker, United States Public Health Service; "Sanitary Needs of Maryland," a symposium by Dr. L. L. Lumsden, United States Public Health Service, Dr. N. R. Gorter, Health Commissioner of Baltimore, and Dr. John S. Fulton, Secretary, Maryland State Board of Health.

Public Health Exhibits of the Association, Public Athletic League, Lung-Motor, Workshop for the Blind, Shepherd & Pratt Hospital were open every afternoon and evening to the public and each night one or two appropriate moving picture films were shown prior to the lectures.

It was estimated that over three thousand persons attended the several meetings, which was the high-water mark since the Conferences were started.

As a direct sequence of this very successful meeting the Committee on Public Instruction planned a three-night program exclusively for the colored citizens of Baltimore, which took place, March 24, 25 and 26.

The logical outcome of this meeting, the theme of which was tuberculosis as affecting the colored race, is first to form a Colored Public Health Association and second to urge the appropriation of sufficient money by the city and state for building a hospital for colored patients suffering from this disease. Through the Association it is hoped to better the conditions surrounding the entire population of the city as well as to supply better dispensary conditions and wider reaching instruction of how to take care of the tubercular who must now live at home.

The Committee on Public Instruction of the Medical and Chirurgical Faculty of Maryland was formed about eight years ago and the work which it did in supplying speakers upon health topics as well as meetings which it arranged for instructive purposes proved so far-reaching in its effects that a citizen of Baltimore, who was deeply interested in the work, supplied the funds to build and equip a public health exhibit, covering the five general subjects of Alcohol, Tuberculosis, Social and Mental Diseases and Baby Saving, at a cost of nearly $2,000. This exhibit has been shown in fourteen counties besides numerous times in various localities in the city itself, and at such times hundreds of copies of health rules and health hints have been distributed.

During the year 1914, the committee arranged and supplied speakers for nearly two hundred meetings and since January 1 has arranged for over one hundred, principally courses in First Aid to classes of teachers, Camp Fire Girls and Boy Scouts. A moving picture machine has been added to the equipment of the exhibit and has proven a wonderful audience-catcher.

When it is considered that 90 per cent. of this work has been cheerfully done by busy physicians without a penny of reward or remuneration except that given by a good conscience, it may safely be assumed that Baltimore is not behind in taking care of her health problems.

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Prophylactic Measures against Typhus.—Civic and military authorities in France are coöperating in an endeavor to prevent the spread of typhus fever from wounded soldiers and refugees who return from the trenches to the vicinity of Paris. All such persons are examined to determine whether they are carriers of lice before they are admitted to the hospital and the standard course of procedure is somewhat as follows: The patient is taken to an examining room near the entrance of the hospital. This room is well lighted and furnished in a sanitary manner. The physician in charge makes a thorough examination of all parts of the body to determine whether lice are present. The clothes are removed and placed in a covered receptacle in which they are taken to the disinfecting room. The patient is given a bath in both hot and cold

water. If he is known to carry lice the hair and beard are clipped and the skin surfaces soaked in xylol of benzine. The patient then undergoes a thorough rubbing with black soap and sometimes mercurial ointment is used upon special surfaces. The patient is examined upon a portable linen litter upon which he is later removed to the hospital ward. The disinfecting room is a small close chamber and forty to fifty grams of sulphur per cubic meter are burned in the disinfection. The examining physician takes special care to avoid infection and the whole process is most carefully carried out.—*Revue D'Hygiene*, January 20.

The Schick Toxin Reaction for Immunity in Diphtheria.—*The American Journal of Diseases of Children*, March 1915, publishes an article by Doctor Kolmer and Doctor Moshage describing the value of the Schick test as it was observed in a large number of individuals at the Philadelphia Hospital for Contagious Diseases. This test is based upon the fact that if a small amount of diphtheria toxin is injected intracutaneously in the human skin it will be neutralized by antitoxin if the patient is immune; but if no antitoxin is present a local inflammation will appear as an indication of susceptibility to the disease. During the past year 1,265 inoculations have been made and from careful observations the authors draw the following conclusions:

"1. The toxin skin reaction is a valuable and reliable method for detecting susceptibility to diphtheria.

"2. Persons reacting negatively to this test usually contain at least 1-20 unit of diphtheria antitoxin per cubic centimeter of serum, and this amount of antitoxin is probably sufficient to protect against infection.

"3. Persons reacting weakly or strongly positive usually contain less than 1/20 of a unit of antitoxin per cubic centimeter of serum or none at all. These persons may be regarded as susceptible to diphtheria and in the event of exposure to infection should be passively immunized with an injection of antitoxin.

"4. About 40 to 50 per cent. of children ranging from 1 to 15 years of age react positively to the toxin test; this means that the preliminary use of the toxin test will eliminate the necessity of administering prophylactic doses of antitoxin to about 50 per cent. of children.

"5. The toxin reaction indicates that the immunity conferred by an injection of antitoxin begins to disappear after ten days and has generally passed away entirely after four weeks.

"6. The increased susceptibility of persons with scarlet fever to diphtheria is shown by the toxin reaction; even after the injection of antitoxin about 10 per cent. are susceptible within ten days.

"7. According to the toxin reaction the immunity conferred by an attack of diphtheria is usually of short duration or entirely absent.

"8. The most practical application of the toxin reaction consists in applying the test as a preliminary measure to all persons who have been exposed to diphtheria and immunizing only those who react positively."

Infant Hygiene.—*The Modern Hospital*, in the March number, comments upon the need of a better understanding and control of antinatal hygiene and the hygiene of the eyes.

The last census report shows that 80 per cent. of the death of babies under one month was due to premature birth, congenital debility, injury at birth, malformation and convulsions. It seems obvious that anti-natal hygiene and efficient obstetrics could do much to remedy conditions. During the year 1913 in New York city one-third of the births were attended by midwives and the establishing of a school for midwives which is intended to raise the standard of the profession in that city seems to have been a much needed step. In many of our larger health departments a division of child hygiene has already been established.

Our responsibility in the prevention of blindness is emphasized by the universal efficiency of the treatment for opthalmia neonatorum and the fact that 25 per cent. of the pupils in schools for the blind are victims of this disease. The two remedies suggested are publicity and legislation.

An Iodine Fumigator.—The *New York Medical Journal* of March 20 prints an article by Doctor Capell of Omaha describing an iodine fumigator consisting of a cylinder for the purpose of vaporizing the iodine and a rubber bulb which forces air into the cylinder and forces out the iodine fumes through the opposite arm. Crystals of iodine are placed in the cylinder which is

then closed with a cork and the cylinder is held over the lamp. The iodine is vaporized and forced out of the open arm in the form of purple fumes. Iodine in this form is stated to be an excellent sterilizing agent for use upon the external surfaces and cavities of the body. It is absorbed quickly and is irritating only to the extent of a temporary smarting. The application may be quickly made, the fumes reach all parts of the surface and the stain lasts but a few minutes. The excellent germicidal properties which we know iodine to possess as well as the many cures in cases of tonsilitis, laryngitis, catarrh, etc., which Doctor Capell has secured by this treatment would seem to testify to the value of this device.

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Epidemic Cerebrospinal Meningitis.—The March number of *Public Health* (London) discusses to some length the nature of the above disease. It seems to have occurred in the first, second and seventh centuries in Italy but has been epidemic in Europe and America only since 1905. Progress in dealing with the disease dates from the discovery of its cause by Weichselbaum in 1887. The Meningococcus is a Gram negative diplococcus, grows well on blood-serum media but fails to grow at room temperature. This latter characteristic distinguishes it from several other diplococci. The colonies are never confluent as with Gonococcus and it is further distinguished by being easily emulsified in salt solution. Other bacteria such as Pneumococcus, Streptococcus and the tubercle bacillus produce meningitis but not in the epidemic form.

Epidemics have usually broken out among collections of individuals and, since the organism chooses the naso-pharynx as its place of abode, coughing, sneezing and spitting are probably associated with the spread of the disease. The organism is so fragile that cultivation is difficult but it may exist in the throat for some time and if the vitality of the person is lowered it may produce the disease.

Eighty to 90 per cent. of all cases are in persons under fifteen years of age. Most patients suffer with naso-pharyngeal catarrh but where the resistance is lowered the organism gains access to the central nerve system by way of the blood stream and is found in a cerebrospinal fluid and in meningeal pus from the spinal cord and brain. The fatality in epidemics has been about 70 per cent.

Well people may carry the disease but they do not correspond to the typhoid carrier. They are people that have been subject to chance infection and the system soon rids itself of the organism.

✽

Antityphoid Vaccination in the United States Army.—It is of interest to know of antityphoid vaccination in the United States Army. The vaccine is derived from a single strain of low virulence obtained from a patient at Netley, England, in 1900. The vaccine is used in less than four months after its preparation and it is found that in 96 per cent. of the cases the subcutaneous injection was followed by slight or negative reaction. Vaccine treatment was inaugurated in the army in 1909. Contrast the two deaths from typhoid among 13,000 men in camp in Texas in 1911 with 214 deaths among 11,000 men under similar conditions in Jacksonville during the Spanish American war. In September 1911 vaccination was made compulsory for all persons under thirty-five years of age. During the past year there were six cases of typhoid in the whole army, two in unvaccinated men and four in men who had received one dose but had been infected before receiving the vaccine. Immunity is thought to last for at least two years. Statistics show that vaccination has had the further effect of reducing the amount of tuberculosis."—*Johns Hopkins Hospital Bulletin*, March, 1915.

✽

Pasteurization of Milk.—*The American Food Journal* publishes in its March issue an article describing the process and comparative advantages of the pasteurization of milk.

The advantages and disadvantages are summarized as follows:

OBJECTIONS TO PASTEURIZATION.

1. Increases cost.
   a. By additional apparatus required.
   b. By fuel required for heating.
   c. By ice or ammonia required for cooling.
   d. By increasing labor of handling.

2. *Conceals inferiority.
   a. By encouraging carelessness.
   b. Discouraging proper care.
3. Interferes with cream rising and whipping.
4. *Modifies taste.
5. *Less wholesome.
   a. Acid less as lactic acid bacteria are destroyed.
   b. Spore forms of bacteria are not destroyed.
   c. Injurious by-products of bacteria not destroyed.
   d. Milk is chemically changed.
   e. Is less easily digested.
   f. Produces scurvy and rachitis.

ADVANTAGES OF PASTEURIZATION.

1. Economic.
   a. By keeping milk sweet longer.
   b. By saving milk which otherwise would spoil.
   c. By saving bills for sickness and milk-borne epidemics.
2. More wholesome.
   a. Pathogenic bacteria destroyed.
   (a) Those found in cow and causing tuberculosis, foot and mouth disease, splenic fever, streptococcus sore throat.
   (b) Those infecting the milk later and causing typhoid fever, diphtheria, scarlet fever and diarrhoeal diseases.
   b. Infant mortality less.
   c. Bacteria decreased in number.

*Some of the above alleged disadvantages of pasteurized milk were shown to be more fancied than real.

✽

Syphilis of the Oral Cavity.—No more important argument for the sanitary drinking cup can be offered than that contained in the conclusions of an article dealing with the above subject in the February *Journal* of the Florida Medical Association.

The author concludes:

"1st: It is practically impossible by inspection alone to differentiate syphilitic from nonsyphilitic sores and is only possible by means of laboratory methods.

"2nd: It is a safe rule to look with suspicion upon every ulcer of the mucous membrane of the mouth, throat and tonsil.

"3rd: Syphilitic ulcers of the mucous membranes of the mouth are highly contagious, in fact the most contagious of all specific ulcers."

✽

"Negroes in the United States."—The bulletin with the above title put out last month by the United States Census Bureau contains for the first time a statement in regard to negro mortality in the registration area in this country.

According to the report:

"The negro population of the area was 19.7 per cent. of the total number of negroes in the United States in 1910, and the deaths numbered 49,499, with a death-rate of 25.5 per 1,000 population—a decrease as compared with the rate in 1900, which was 29.4."

In a table of comparable data, from the 57 registration cities, each of which had, in 1910, a negro population of 2,500, or more, the following interesting information is tabulated:

"In the 57 cities the death-rate among negroes in 1910 was 27.8 and that among whites 15.9 per 1,000, the rate among the negroes being nearly twice as great as that for the whites. In the 33 Northern cities the death-rate among negroes was 25.1 and that among whites 15.7 per 1,000, while in 24 Southern cities the rate for negroes was 29.6 and that for whites 16.9. Thus the death-rates for each race were higher in the Southern than in the Northern cities, the difference between the races in respect to death-rate also being greater in the South.

"Both negroes and whites show decreases in death-rate in 1910 as compared with 1900, when the 57 cities are considered in the aggregate, the decline for the negroes being 3.4 and for whites 2.3 per 1,000 population. Every city in the South, except Key West, Fla., and Memphis, Tenn., showed a lower death-rate for negroes in 1910 than in 1900; the increase in Key West was only 0.2, while in Memphis it was 3.9 per 1,000.

"The general tendency appears to be in the direction of a declining death-rate for negroes in registration cities, the decrease being somewhat greater for negroes than for whites; as a result, the difference between the death-rate for negroes and for whites in these cities was not as great in 1910 as a decade earlier."

Another table shows that

"Deaths among negroes, as compared with the whites, are relatively more numerous for malaria, tuberculosis of the lungs, other forms of tuberculosis, pneumonia and whooping cough;

while for measles, scarlet fever, diphtheria, cancer, appendicitis, diarrhea, and violent deaths including suicide the distribution is noticeably higher among whites.

"In other causes the differences in the percentages are slight.

"The question as to whether the decrease in mortality among negroes in 1910 as compared with 1900 was due to permanent causes, such as improved housing conditions, better medical attention, and in general improved sanitary conditions, and not to the absence of epidemics, is an important and interesting one.

"Undoubtedly one of the factors which has caused the decrease in the death-rate—which decrease is almost universal in the cities of the South—is the increase in home ownership among the negro population."

In support of the last conclusion, a third table is produced, a study of which indicates that, "in the decade from 1900 to 1910 the number of homes owned by negroes in the Southern states increased by 192,912, or 31.4 per cent; this increase covering increase in farm homes of 30,449, or 16.7 per cent., and in other homes of 72,463, or 49.8 per cent."

❁

Effects of Preserving Processes upon Virulence of Tubercle Bacilli in Milk.—The Local Government Board of the London County Council have issued a bulletin entitled "Report of the local government board upon the effects of certain condensing and drying processes used in the preservation of milk upon its bacterial content." This bulletin deals with two sets of experiments recently carried out by Dr. S. Delépine with the object of (1) Ascertaining the effects of certain drying processes upon the virulence of the bovine tubercle bacilli; and (2) the effect of drying processes upon the bacterial content of the milk.

Three methods of treatment were investigated. These included the manufacture of sweetened condensed milk, the drying of milk over heated revolving cylinders and the drying of milk by spraying into currents of hot air. Samples of the milk were collected before, during, and after treatment and were submitted to the following tests: Estimation of solids and reaction, microscopical examination of sediment, cultivation upon certain culture media, inoculation of guinea pigs and feeding to rabbits.

Of several cows kept for observation for some weeks, each suffering with tuberculosis of the udder, only one was found to be secreting a fair amount of tubercle bacilli at the time of the experiment. Live cultures of virulent bovine tubercle bacilli were mixed with the milk in the first set of experiments, so that the tubercle bacilli would be demonstrated by direct microscopical examination of any of the milk.

The first method under consideration was that of the manufacture of sweetened, condensed milk. In this method milk is heated to 40 or 45 degrees centigrade and held for some 20 minutes. The milk is then further heated to 92 degrees centigrade and kept at this temperature for six minutes. It is then cooled to 45 degrees centigrade and evaporated to one-third its original bulk. The total bacterial content of the mixed milk (raw) was 38,000,000. During treatment this number was reduced at one time to less than 50, while the finished product contained about 900 bacteria per cubic centimeter. The finished, sweetened product failed to produce tubercular lesions when inoculated and fed to either guinea pigs or rabbits.

The method of drying milk over heated, revolving cylinders was investigated at two different factories, and it was found that, while the total bacterial content of the milk was greatly increased, the finished product contained more bacteria per cubic centimeter than was found at one time during the treatment. In spite of the fact that the milk is heated during this process to a temperature of about 140 degrees centigrade, living tubercle bacilli were found in the dried milk, and when fed to rabbits and guinea pigs, produced lesions not unlike those produced by the inoculation of raw milk containing bovine tubercle bacilli of known virulence.

The second set of experiments were undertaken with the idea of ascertaining the effects of drying processes upon the bacterial content of the milk. Samples of milk containing known numbers of bacteria were dried both by revolving cylinders and by being sprayed under high pressure into currents of hot air, and samples were here taken at the beginning of the experiment, during the treatment and of the dried product, and bacteriological examinations were made. It was found that the reduction of numbers of bacteria was great, but the total count

raised above the lowest point reached during some part of the process.

Doctor Delépine concludes that the increase in numbers of bacteria is due to re-contamination. The reduction was greatest in the manufacture of sweetened condensed milk; lowest in the process of drying milk by spraying into currents of hot air, while the treatment over revolving cylinders occupied amiddle position. In each case the bacteria appeared to have become shrunken during treatment.

✽

Wisconsin Eugenics Law.—A prominent physician of Milwaukee makes statement that the eugenics marriage law is "silly and absurd" and claims that it "makes liars and perjurers of physicians." This statement has been contradicted by the president of the Milwaukee Maternity Hospital, who says it has worked wonders "both in actually preventing the marriage of the unfit and in an educational way." After investigation, it was declared: "Any respectable physician can give a competent examination and not make himself a *liar* or *perjurer*."

✽

Bat the Rat.—Walt Mason's humorous, yet important "Bat the Rat" plea appeared in the March *Health Bulletin* of North Carolina and we feel it worthy of repetition here:

"Oh, bat the rats, and break their slats, and hand the beasts their bitters! 'No quarter' goes—destroy the foes, for they are filthy critters! Let them no more infest your store, your costly goods devouring, but run them out—put them to rout, their legions overpowering. Oh, swat the brutes that chew the fruits and gnaw the loaves and cheeses, that go their way, day after day, distributing diseases. If you, I think, took pen and ink, and figured what rats cost you, the total would knock you dumb and pretty nearly frost you. It's bad enough to see them stuff themselves with costly plunder, to know they dwell in hole and cell all 'round the store and under; it's bad enough, it's surely tough to have to feed and lodge them; but worse yet is this, you bet—the fame those critters lend you; for folk will score your store, and no one will defend you. 'In yonder store I saw a score of rats,' exclaimed some matron; 'they were so thick they made me sick'—and thus you lose a patron.

"So, bat the rats with guns or cats, or anything that's handy, with lance or sword, or strip of board, sandbag or poisoned candy. From South to North let us go forth, attired in batting garments, from East to West, let's work with zest, and bat the dirty varmints. Let's bat the rat, the lean, the fat, the old one and the ratling; the gray, the brown, we'll hammer down, and never cease our battling."

✽

Cultivation of the Germ of Syphilis.—*The Journal of Experimental Medicine* (March 1915) describes the work of Doctor Zinsser and others in cultivating Treponema pallidum. Several methods are described but the successful cultivation in fluid media, composed of mixtures of slightly acid broth and sheep serum containing autoclaved tissue is of special interest in that it gives an excellent method for obtaining mass cultures for experimental work. By this method great quantities of the germs can readily be obtained for immunological experimentation.

✽

Favor New Marriage Laws.—Dr. Jas. J. Terrell of Temple, Texas, in an address delivered before the State Conference of Charities and Corrections at San Antonio late in 1914, outlined, after a detailed exposition of the marriage laws of other states, the provisions which he thought ought to be embodied in a model law for Texas. They follow:

1. Make it obligatory upon the male applicant for license to marry to present to the county clerk a certificate under oath by a legalized physician that said applicant is free from communicable acquired venereal disease, such examination to be made within two weeks of application.

2. Require physician to make careful physical and microscopic examination for gonorrhea, to make careful physical examination for chancroid and syphilis. A blood examination for the latter should not be required.

3. Prohibit the divulging of any information by those having official knowledge of the same, this to include the county clerk and the physician. This leaves it optional with the applicant to give out any information, and would not prohibit the relatives of the woman from explaining why the marriage does not take place if the applicant fails to secure the certificate.

4. In case of rejection by a physician, provide for an appeal to a commission of three physicians appointed by the county judge.

5. Provide that if a man having his residence in Texas shall marry out of the state and return to it under twelve months for residence he shall be required to file such certificate with the county clerk within thirty days after his return.

6. Affix fees for medical examinations at not more than $5.00.

7. Provide penalties for failure to observe these provisions.

✽

Water Supplies on Trains.—Bulletin No. 100 of the Hygienic laboratory takes up the question as the results of chemical and bacteriological examination of some 322 samples of water taken from the tanks of railroad cars arriving at the Washington station. Concerning the equipment on the different cars for storage and refrigeration of drinking water, the report states that the arrangements on the sleeping cars are satisfactory, while the equipment "for storage of drinking water on mail cars and day coaches is wholly inadequate." The majority of the dining cars seem to have a satisfactory equipment, as most of them are provided with filters of the Pasteur or Chamberland type. The report recommends that the storage capacity of water in coaches and mail cars be increased and that the ice and water be kept separate.

IMPORTANT MEETINGS.

National Commission on Milk Standards. The National Commission of Milk Standards will hold its annual meeting in New York City on May 7–8.

Delegates will be present from the International Milk Dealers' Association, the National Creamery and Butter-Makers' Association and the National Ice Cream Association. They will consult with the Commission on Milk Standards regarding the regulations which the commission is considering for control of these branches of the milk industry.

The question of holding a Clean Milk Congress will be presented for the consideration of these delegates. The secretary of the commission is Dr. Charles E. North, 50 Church Street, New York City.

✽

The Seventh Pan-American Congress will meet in San Francisco, June 17–21, inclusive. It assembles pursuant to invitation of the President of the United States issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The First Pan-American Medical Congress was most successfully held in the United States in 1893. Five intervening congresses have been held in Latin American countries. It now devolves upon the medical profession of the United States to make this, the seventh, the most successful in the series.

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The Southern Sociological Congress will be held at Houston, Texas, May 8–11, 1915. General Secretary, J. E. McCulloch, Nashville, Tenn.; Theme: "The Conservation of Health." The six departments will cover communicable diseases, moral health, mental health, health of children, health and race relations, the church as a conserver of social health.

There will be a health exhibit which will probably be made up of southern material.

Industrial Hygiene and Sanitation.

Another New Departure.—The New York City Health Department is about to establish a new division—the Division of Industrial Hygiene, according to a recent bulletin. It is to be under the general supervision of the Director of the Bureau of Infectious Diseases, and will be closely associated with the Bureau of Public Health Education.

"The Committee on Public Health Education of the Advisory Council, which was recently requested by the Commissioner of Health to consider the advisability of establishing a Division of Industrial Hygiene, has endorsed the following report prepared by a sub-committee consisting of Dr. George M. Price, Chairman, Miss Frances Perkins and Alderman Jacob Weil."

The report declares that it is within the functions of the health department to establish a Bureau of Industrial Hygiene and outlines the recommended purposes of the new division as follows:

"1. The establishment of a central occupational disease clinic for research investigation of industrial diseases on the lines of the clinic of Professor Devoto at Milan, Italy.

"Such a clinic should be separate from the tuberculosis clinics although acting in harmony with them and in coöperation with the university and hospital clinics throughout the city.

"Such a clinic should be the central clearing house of all specific occupational diseases and industrial poisonings, should have ample means for research and investigation and should also study the prophylaxis of the various industrial diseases with which it comes in contact.

"2. The establishment of an industrial hygiene educational division which should endeavor by all means to spread the knowledge of the causes of industrial poisoning, the preventive measures to be taken in various industries and the right modes of work and living for the industrial population throughout the city.

"Such an industrial hygiene educational division should also, in coöperation with the various manufacturers associations and other existing bodies, as well as with the Department of Education, endeavor to conduct a general campaign of education among the manufacturers and workers as to the prevention of occupational diseases and the preservation of the health of the workers.

"A Bureau of Industrial Hygiene organized on the lines indicated would be a potent factor in the reduction of mortality and morbidity in the city and would add prestige and credit to the municipality and to its Health Department."

✽

"Child Labor Bills Pending in Twenty-Seven State Legislatures."—The *Survey* for March 6 contains an article with the preceding title, showing the interest and the evident necessity for such interest in many of our dates. These bills deal primarily with the issuance of work permits; age limits for child employment; length of daily employment; and age at which night-work shall be allowed. If twenty-seven of our states conceive good child labor laws, the time when all will obtain them should be very soon.

✽

"Do's" and "Don't's."—The Bureau of Mines in publishing the report of the Committee on Resuscitation from Mine Gases (Technical Paper 77), recommends the following procedure in giving first aid to those in need of artificial respiration:

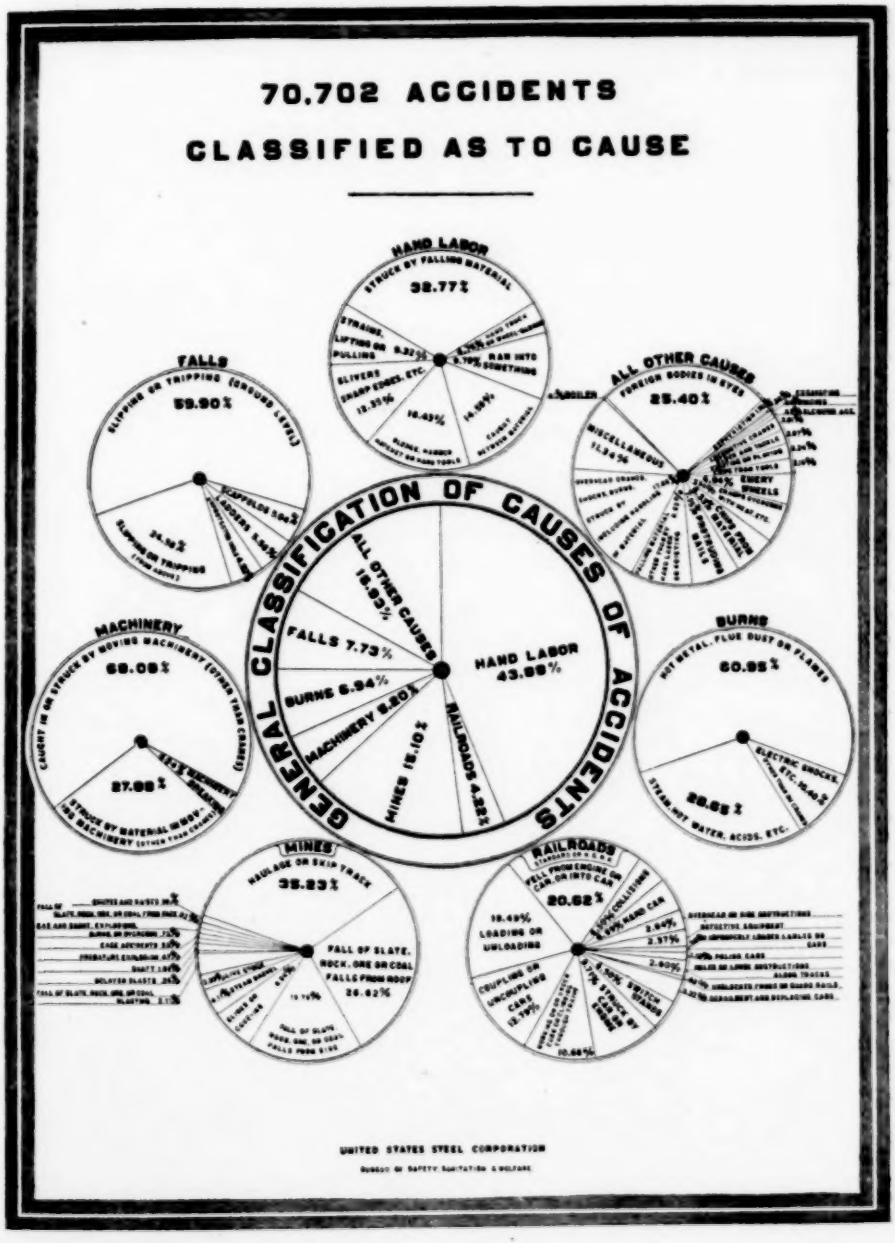
"In case of gassing, remove victim at once from gaseous atmosphere. Carry him quickly to fresh air and immediately give manual artificial respiration. Do not stop to loosen clothing. Every moment of delay is serious.

"In case of electric shock, break electric current instantly. Free the patient from the current with a single quick motion, using any dry non-conductor, such as clothing, rope or board, to move patient or wire. Beware of using any metal or moist material. Meantime have every effort made to shut off current.

"Attend instantly to the victim's breathing. If the victim is not breathing, he should be given manual artificial respiration at once.

"If the patient is breathing slowly and regularly, do not give artificial respiration, but let Nature restore breathing unaided.

"In gas cases give oxygen. If the patient has been gassed, give him pure oxygen, with manual artificial respiration.


70,702 ACCIDENTS
CLASSIFIED AS TO CAUSE
GENERAL CLASSIFICATION OF CAUSES OF ACCIDENTS
HAND LABOR 43.88%
FALLS 7.73%
BURNS 6.94%
MACHINERY 8.20%
MINES 15.10%
RAILROADS 4.32%
ALL OTHER CAUSES 13.93%
HAND LABOR
STRUCK BY FALLING MATERIAL 38.77%
STRAINS, LIFTING OR PULLING 9.32%
SLIVERS SHARP EDGES, ETC. 12.31%
RAN INTO SOMETHING 9.79%
FALLS
SLIPPING OR TRIPPING (GROUND LEVEL) 59.90%
SLIPPING OR TRIPPING (FROM HEIGHT) 24.34%
SCAFFOLDS 5.06%
LADDERS 5.34%
ALL OTHER CAUSES
FOREIGN BODIES IN EYES 25.40%
MISCELLANEOUS 11.34%
EMERY WHEELS
MACHINERY
STRUCK BY MOVING MACHINERY (OTHER THAN CRANES) 68.08%
CAUGHT IN OR STRUCK BY MOVING MACHINERY (OTHER THAN CRANES) 27.08%
BURNS
HOT METAL, FLUE DUST OR FLAMES 60.95%
ELECTRIC SHOCKS, ETC. 10.42%
STEAM, HOT WATER, ACIDS, ETC. 28.63%
MINES
HAULAGE OR SKIP TRACK 35.23%
FALL OF SLATE, ROCK, ORE OR COAL FALLS FROM ROOF 26.62%
RAILROADS
FALL FROM ENGINE OR CAR, OR INTO CAR 20.62%
LOADING OR UNLOADING 18.49%
COUPLING OR UNCOUPLING CARS 13.79%
STRUCK BY CARS OR LOCOMOTIVES 10.66%
UNITED STATES STEEL CORPORATION

"The oxygen may be given through a breathing bag from a cylinder having a reducing valve, with connecting tubes and face mask, and with an inspiratory and expiratory valve, of which the latter communicates directly with the atmosphere.

"No mechanical artificial resuscitating device should be used unless one operated by hand that has no suction effect on the lungs.

"Use the Schafer or prone-pressure method of artificial respiration. Begin at once. A moment's delay is serious.

"Continue the artificial respiration. If necessary continue two hours or longer without interruption until natural breathing is restored. If natural breathing stops after being restored, use artificial respiration again.

"Do not give the patient any liquid by mouth until he is fully conscious.

"Give him fresh air, but keep his body warm.

"Send for the nearest doctor as soon as accident is discovered."

A limited number of copies of the report may be obtained free from the Bureau of Mines, Washington, D. C.—*West Virginia State Board of Health Bulletin.* January, 1915.

The Tragedy of Unemployment.—During the past winter we have had an opportunity of seeing the havoc that can be caused by "poor times" or lack of employment. That there is an effect upon the public health may be evinced by the following from the January Toronto *Health Bulletin*:

"There is evidence in many directions that the tremendous amount of unemployment at present existing is steadily undermining the health of the people. This lack of employment, with its consequent poverty and destitution, brings about lowered vitality in its victims, weakens their resisting powers and lessens their immunity to desease. And more than health is undermined as a result—for many of those who are forced to become charity cases, because of unemployment, never become self-respecting citizens again: they will have received charity too long.

"The cases which are constantly being brought to our notice, and which are the most pathetic of all, are those of self-respecting citizens who have never received or asked for aid before, and who would indeed in many instances rather starve than receive alms."

Trachoma as an Epidemic Disease.—An article by J. M. Woltz in the January number of *Safety Engineering* summarizes the experience of the Youngstown Sheet & Tube Company in handling an outbreak of trachoma and demonstrates clearly both the need of trained health officers for every community and the need of supervision of the health of employees by every large concern.

It will be remembered that the cause of trachoma is not definitely known, although it is admitted that it is an infectious disease capable of being cured. Under some conditions only an operation can bring relief and blindness is estimated to occur in about 75 per cent. of untreated cases.

In September, 1913, a patient who came to the Emergency Hospital at East Youngstown was found to have trachoma. Two weeks later two more cases were reported. Examination of the living conditions of the patients disclosed so serious a menace to the health of the Company's employees that leaflets were distributed describing methods of prevention of the spread of the disease.

Finding the disease to have originated outside of the factory the Company placed the matter in the hands of the local health board but because of its poor organization no help was forthcoming. The State Board was appealed to and sent two physicians to East Youngstown who examined the cases and recommended treatment. The treatment was not complete, however, and the cases were released too soon. The United States Public Health Service was then asked for aid and sent a specialist to the town to make a systematic study of conditions. A report was soon made concerning the best methods of treating the disease and the sanitation of the town. The local health officer was a layman without the training in sanitation to enable him to cope with the situation. And since the unsanitary conditions were resulting in the gradual spread of the disease and since the Youngstown Sheet & Tube Company were vitally interested in the problem it was recommended that this Company establish a hospital for treating the disease and adopt a systematic procedure for bettering the sanitary conditions. This they did and a special physician and nurse were employed. The cases were segregated and the proper treat-

ment administered. The local health officer gave his assistance in putting the plan into operation and it was agreed that the township should pay its share of the expense should it ever become able to do so.

The results were most gratifying. The hospital gave 13,183 individual treatments to the 242 patients admitted and, in every case but one, a portion of the patient's sight was preserved. The hospital was opened from February to August 1914 and a strict watch of all employees is still maintained to see that no new cases arise. It seems that the whole incident might have been avoided had suitable public health administration been in force at the time of the first case.

✽

Safeguards Elevators.—The American Museum of Safety has announced that the Scientific American Medal for 1914 is awarded to Glenn S. Williamson, for the invention of a safety device for elevators. The simple pressure of one lever by the foot of the operator, insures three conditions:

(1) Holding the elevator car immovable at a safe landing while the gate is open.

(2) Locking the gate shut before the car can be moved up or down the shaft.

(3) Keeping the gate shut and locked when the car is away from the landing.

✽

Safety in Good Lighting.—In a very good article in the *Engineering Magazine* for March, 1915, G. H. Stickney summarizes the good effects of proper lighting.

"Good artificial illumination," he states, "can be furnished in such a factory for eight hours a day at a cost equivalent to about five minutes of the time of the workmen benefited. This illustrates the extravagance of poor lighting."

He calls attention to and treats independently the two phases of safety presented by good illumination, namely the prevention of accidents and the preservation of sight.

He discusses the effects of glare, improper distribution and unsteady lighting; contrasts "general" and "localized" lighting systems, and shows under what general conditions the two systems, singly or in combination, are to be preferred.

Inspection Important.—The Bureau of Labor Statistics and Factory Inspection of the State of Washington in a report of 1913–1914, in commenting on the Factory Inspection Law after a thorough trial, recommends the broadening of its scope. The large number of accidents happening in the 300 logging camps of the state is pointed as an important argument in favor of the broadening of the scope of the present law.

Factory inspection, it also points out, is now becoming a profession—and deplores the fact that the Washington law provides that not more than $4.00 per day can be paid to inspectors—a wage which is "perhaps the lowest paid for such work by any state in the Union."

There is not so much need of a stringent law as there is of rigid and *intelligent* inspection—and the Bureau desires a provision by which high-class inspectors can be secured.

✽

The Federal Compensation Bill.—The Kern-McGillicuddy bill now before Congress is intended to provide more adequate compensation to civil employees in the United States. At present, although employees are unable to sue their employer, only one-fourth of them are protected by a compensation law. The present bill covers all civilian employees of the United States and the Panama Railroad. Since this bill includes a large clerical service it is obvious that the increase in accidents will not be comparable to the increase in the number of persons affected.

Compensation upon the basis of 62½ per cent. of wages is paid from the fourth day after disablement whereas under the existing law a wait of fifteen days is followed by a payment of full wages from the first day. Medical supervision and machinery for encouraging the means for the prevention of accidents are provided and a commission is established for the administration of the act.—*Survey*, February 13.

✽

Child Labor.—The August *Child Labor Bulletin*, prepared by the National Child Labor Committee, contains reports of children at work on men's clothing and of child labor in the glass industry.

The latter report states that: One in ten of all wage-earners in the one hundred and seventy-nine glass factories studied by the United States

Bureau of Labor was a child under 16 years of age. Since the investigation covered three-fourths of all the establishments, more than three-fourths of all furnaces, and all but four of the twenty-one states manufacturing glass in 1907–1908, its findings may be accepted as typical of the industry at the present time.

The report answers the following questions:

1. What were children doing in the glass factories?

2. What opportunities for training and advancement awaited them in the industry?

3. What was the attitude of the glass industry toward their employment?

4. How young were the children and what should be the legal restrictions upon the employment of minors in glass factories?

Of 3,615 boys under 16 years of age, 262 were less than 14 years old; of the 481 girls under 16 only 15 were under 14 years.

The greater proportion of these are working under conditions of high temperature and may be subject to great changes in temperature. Their chances for advancement are indeed small, their salary small and the regular hours worked by the boys corresponds in general to the hours of the skilled workers, which are approximately 50 hours per week on the night shift and 50 hours or less on the day shift.

✽

A Definition of Safety.—The following is an abstract of an address made by F. R. Hutton, vice-president of the Museum of Safety and printed in the December issue of the Bulletin of the American Museum of Safety.

"Safety may be defined as a condition or state in which a man or a thing is shielded from harm. A safety device is an apparatus or appliance which shields or protects a man or a thing from harm or injury. A safety process is one in which the normal functions operate without harm or injury to those who labor in connection with it, and without risk of harm to the innocent bystander engaged in his usual occupations or avocations."

There is then a twofold philosophy in regard to Safety. Such philosophy is economic in the first place and humanitarian both in the first and second places. Consideration of the economic significance of safety in industry involves that:

1. The tool or device or process must work continuously to be profitable in competition. It must therefore not be liable to injure itself or to be held up from production because of accident which calls for repairs.

2. Its accident when it happens (and it is sure to, first or last) must not injure the operator, nor in the case of transportation apparatus such as cars or elevators, the passengers or the bystanders. The disability of the skilled operator stops production and entails loss.

3. The compensation of the injured employee increases cost of production. It therefore raises the selling price of the article produced and thus increases the "cost of living."

4. If death results from the accident, the community as a whole bears increased expense in taxes, in pensions, and in an over-weight of consumers in comparison with economic producers.

The second point of view, which is also logically the first, is the humanitarian point of view. The accident or harm to the person is due to his being exposed to a wounding or disabling mechanical force which the soft tissues or fragile structure of the human body could not withstand; or the harm is from the poisonous fumes or dusts of the trade which lead to a gradual breaking down of healthy tissues or normal bodily processes. This latter is a slow assault upon health and therefore upon wage-earning capacity. In the first group the thinking for safety will be directed to find and install the true accident-preventing devices, in the second group are all the safeguards against breaking down of lung tissues or the functionings of the vital organs; the prevention of asphyxiation, paralysis, blindness, ulcers, and infected wounds.

In the group to which the title municipal may be applied will be found the methods of securing safety where joint action of many individuals has to be secured. This means the attainment of safety in the crowded thoroughfare; in the elevator; on the street-railway or subway; and in the theater or place of amusement or education. These are the problems of the skilled handling of traffic; of well-planned rules and their wise enforcement for the guidance of the public; of fire drills and panic-preventing exercises.